DEATHS IN CHILDBED

BY

Æ. MUNRO.

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DEATHS IN CHILDBED

AND

OUR LYING-IN HOSPITALS:

TOGETHER WITH

A PROPOSAL FOR ESTABLISHING

A Model Maternity Institution

FOR

AFFORDING CLINICAL INSTRUCTION AND FOR TRAINING NURSES.

BY

ÆNEAS MUNRO, M.D.

LONDON:
SMITH, ELDER, AND CO., 15, WATERLOO PLACE.

MDCCCLXXIX.

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TO

WILLIAM FARR, M.D., D.C.L., F.R.S., &c.

SIR,

I have endeavoured in the following pages to discuss fairly and fully the very interesting subject of childbed deaths, and, so far as a worker can show appreciation and admiration for the high attainments and talents of an author, I would now beg respectfully to show to you by the dedication of this work.

By general acclaim you have rendered, through your marvellous industry, perseverance, and learning, pre-eminent services to your country and your age, not only by your direct work, but also as a pioneer in constructing the science of vital statistics.

Thus you have rendered incomparable aid to all who have studied such subjects as are discussed in this volume.

There are imperfections in this work, arising from its authorship, for which I can plead several excuses, but the chief imperfection is due to the incompleteness of our present knowledge of the facts on which the statistics and comparisons themselves are based.

Should I, however, be fortunate enough to secure your approbation for this Treatise, the aim I have had in view—namely, the calling attention to the appalling mortality of childbed, and the urgency at the present time of improving and increasing the lying-in accommodation in London by the erection of a model maternity hospital—will be powerfully stimulated and assisted.

I am, Sir,

Yours faithfully,

ÆNEAS MUNRO.

12, PARK LANE, W.,
July, 1879.

General Register Office,

Somerset House,

8th July, 1879.

Dear Dr. Munro,

I have much pleasure in accepting your dedication, because I venture to hope that your work may, by calling the attention of our profession to the urgent necessity for more precise certification of causes of deaths due directly or indirectly to child-bearing, effect an improvement in the materials from which satisfactory statistics of puerperal mortality can alone be constructed.

I am, moreover, glad to see that you fully appreciate the desirability of affording increased facilities to students in our medical schools for acquiring obstetrical instruction and experience.

I am, dear Dr. Munro,

Yours very faithfully,

WILLIAM FARR.


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PREFACE.

In 1869, 1870 and 1871 four works were produced on the subject discussed in the following pages; since that date no separate work on the question has appeared. At that particular time the interest taken in the subject was great, and as a consequence we find, in the works alluded to, that a good deal of controversial feeling and partisanship were displayed. During the eight or ten years that have elapsed, information has been accumulating. The "Antiseptic System" of treating disease has been mighty in setting men a-thinking in all parts of the world, and in directions and to an extent which had not been thought of before. Hence, in all the departments of medicine—no less in the obstetric than in the two others—great advances have been attained. Statistical data have accumulated, and, to some extent, have become more exact and accurate, though no doubt much remains yet to be done in this respect; at all events, the domain of statistics is becoming more clearly defined.

For several reasons, therefore, it is only fitting that a fair and impartial enquiry should now be made regarding the subject of Childbed Deaths, more especially the division of it which pertains to Metria

(Puerperal or Childbed Fever). The question is one that affects society in general, and is therefore of exceeding great interest to the public as well as the profession. Its importance necessarily can scarcely be over-estimated.

There is also sketched out a new institution—as a Lying-in Hospital and a Training School for Medical Men and Nurses or Midwives—which has several features of excellence, and advantages worthy of consideration. The enlightened experience of recent times points to an institution of this sort being required, and as likely, on the one hand, to prove an asylum of the safest kind to the women who must resort to such shelters, while it is, on the other hand, the one best adapted for teaching requirements.

The subject is altogether a very difficult and comprehensive one, and one that requires to be looked at —all round—from various points of view. How far this has been done the writer leaves it to the reader to decide. He has endeavoured to make the subject as interesting and attractive as possible. He trusts that others more able than he may take it up, and urge its claims for consideration by the public and the profession in a manner commensurate with its importance.

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ERRATA.

1. Page 36, eleven lines from bottom, for "aggregation *qua* aggregation," read "segregation *qua* segregation."
2. Pages 49 and 93, five and four lines from bottom of respective pages, for "deny," read "state."

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INTRODUCTION.

"There is no subject which excites more the interested attention of the profession and of the public than puerperal deaths, yet, unfortunately, there is none regarding which there is more misunderstanding."—J. MATTHEWS DUNCAN.

"So destitute are some poor creatures, that either in some such separate institution or in workhouses, they must have help, and this necessity may be turned into account in a training medical school."—WILLIAM FARR.

"Life is of more value in the British Empire than in any other part of the globe, and the means to secure it to the latest periods ought to be sought out and put in practice. Let us reform our hospitals now."—*Notes on Hospitals*, by FLORENCE NIGHTINGALE.

"THE establishment of hospitals is a necessity, and marks the era of an advanced civilization." So wrote Sir James Simpson thirty years ago, reiterated and enforced ten years ago (the year before his death) under circumstances which made a truth of this kind all the more telling, for he was then putting forth a violent philippic, such as he alone could do, against hospitals as they existed. Curiously enough, Dr. Kennedy of Dublin, about the same time (1869), had also become strongly impressed with the conviction that our hospital system was wrong, and urged the necessity of a change, more particularly with regard to Lying-in institutions. He introduced the subject of alteration to the Dublin Obstetrical Society, and a discussion ensued, lasting **nine** nights, and extending over nine weeks; and from the fact that he had to answer the objections to his propositions, which "seventeen learned doctors poured upon me 'quick, thick, and heavy,' like a thunder shower," he had just reason to add that he had "a difficulty not easy to surmount." His views, and his reply to their strictures upon his paper, are contained in a treatise which is singularly able and

well put together, considering the hasty way one has to prepare for an attack in debate.

Dr. Matthews Duncan next appeared in the field; fearing lest our charitable institutions should suffer revolutionary violence, he essayed to champion them and prove a defender of the faith. In his book "Mortality of Childbed and Maternity Hospitals," he has collected a mass of evidence pertinent to the subject, which cannot fail to be valued in connection with the elucidation of the mortality connected with Childbirth. Next year, 1871, another, and perhaps one swaying a more powerful sceptre than any of the preceding, appeared in the arena. Miss Nightingale interested herself in the subject, and forthwith "Notes on Lying-in Institutions" was given to the world. The people of Britain know how to appreciate her "Notes." To these four the nation owes a great debt. They specially have called attention to a subject of vital importance. Everybody must be born, and every woman in this realm is supposed to require (owing to the severity and risk attending Childbirth) aid during parturition. It is well known that it is a natural process, but it is equally well known that it is a dangerous time in the life of every woman and child. Anything, therefore, that has for its object the procuring of greater safety to the welfare and happiness of two lives must prove a national and inestimable blessing. In this introductory notice of the authors whose writings we shall freely use hereafter, it would be unpardonable to omit the mention of Dr. Le Fort,

whose enquiries concerning Maternity Hospitals were the immediate cause of the question being raised in its present form; so alarming, nay appalling, were the statistics which he produced. Mention is gratefully made of the great value of the work of the Registrar-General in elucidating this subject. Those who are specially interested in the subject will also find much useful information in the reports of the debates on the question of puerperal fever in the Obstetrical Society of Dublin (1869), which will be found in the "Dublin Quarterly Journal of Medical Science;" and of the Obstetric Society of London (1877), as contained in the Medical Journals of that period—for the latter we rely upon the exhaustive summary of its President, Dr. Priestley. This summary was so valuable that it was printed at the request of the Society. Sir James Simpson's work "Hospitalism," Dr. Kennedy's treatise on "Hospitalism and Zymotic Diseases," Dr. Duncan's "Mortality of Childbed and Maternity Hospitals," Miss Nightingale's "Notes on Lying-in Institutions," the Reports of the Registrar-General, and the reports of the debates alluded to are the works which we shall have most to do with. The subject to be discussed is a difficult one, and inasmuch as these distinguished authorities have mainly relied upon statistics, it is somewhat difficult and puzzling to arrive at a satisfactory conclusion common and acceptable to both sides, for it is easy to see they are strong partisans—Dr. Le Fort, Sir Jas. Simpson, Dr. Kennedy and Miss Nightingale have arranged and handled their

statistics so as to make out a strong case against hospitals. Dr. Duncan alone among the authorities named moves the previous question. Still he is not alone, for there are the "seventeen learned doctors" of Dublin with him, and others also. While on the other hand there are many in the profession who will join in the ranks of the other party, though we doubt if the majority of them belong to that class who claim to have a **special** acquaintance with the subject. It would be useless not to admit that there are learned men in the profession and outside it who are convinced in their own minds that all is not as it ought to be in these institutions, the value of which is not questioned when they are properly managed, but there is a something wrong somewhere or other. It is well known, respecting two of the four lying-in institutions in the metropolis, that while they have been supposed to have been the best, their mortality has been the subject of enquiry; not later than in the "British Medical Journal" of May 3rd, 1879, there is a notice concerning one of them, to the effect that two more mothers and two more infants were recorded as having died during the previous week, **making ten deaths of mothers and thirteen deaths of infants recorded during the "last four weeks."** It is also mentioned that a special investigation is consequently in progress. The week after, 10th May, it was noted that **five more children died in the course of the week**—cause, erysipelas. It cannot be wondered at that a hospital having under 500 in-patients annually, and having ten deaths of mothers and eighteen of

infants in four weeks, should create considerable alarm and anxiety.

Unanimity of opinion we cannot have, indeed perhaps this would not be desirable, but the love of humanity ought to constrain us to have oneness of aim in searching for the truth. Parties there must be, partisanship there ought not to be, it is always wrong.

We have to discuss impartially the facts and opinions concerning Lying-in Hospitals with a view to finding out their usefulness.

Our first object then is to ascertain some preliminary matters concerning the question, respecting which we must come to some common understanding. Second, to enquire as to the influence of residence upon Lying-in, more particularly the mortality of childbed. Third, if our present Lying-in institutions are found to be faulty, inadequate, and yet indispensable, can we supplement them, and what is the safest means pointed out to us for so doing? Fourth, having theoretically and practically the best and safest accommodation, so far as constructive arrangements are concerned, we shall enquire as to the most efficient management which ought to be adopted in such institutions. Fifth, we shall enquire into the cost and maintenance of such an institution, *i.e.*, consider whether it is expedient or not, and what is the best means for attaining this end. Sixth, give objections raised to establishing such an institution, with rejoinders.

The vast importance of the subject may be seen by examining the accompanying table, from which it

appears that **more women die (between fifteen and forty-five years of age) from childbirth than from any single disease** except consumption and heart disease.

TABLE I.—*Showing relative number of deaths of women in childbearing age in London and England.*

Causes of Death among Females between 15 and 45 Years of Age.	London.		England.		Causes of Death among Females between 15 and 45 Years of Age.	London.		England.	
	1875	1876	1875	1876		1875	1876	1875	1876
Childbirth { Metria	293	264	2505	1746	Nephritis	34	33	169	164
Childbirth { Accidents	288	321	2560	2396	Ischuria	3	2	17	28
Small-pox	12	175	225	564	Bright'sDiscase(Nephria)	199	149	908	933
Measles	3	5	26	33	Diabetes	25	24	188	176
Scarlet Fev.(Scarlatina).	74	55	426	369	Calculus (Stone)	4	5	12	14
Diphtheria	29	16	188	151	Cystitis	5	3	41	44
Quinsy	13	4	40	34	*Kidney Disease, &c.*	72	80	404	341
Croup	—	—	—	1	Ovarian Dropsy	43	50	218	217
Whooping-cough	—	—	6	5	*Uterus Disease, &c.*	128	116	635	775
Typhus Fever. Enteric or Typhoid F. Simple Continued F.	273	272	3162	2595	Synovitis (Arthritis)	3	1	14	15
					Joint Disease, &c.	67	56	368	367
					Phlegmon	40	34	188	159
Erysipelas	63	42	394	276	Ulcer	6	7	53	54
Carbuncle	3	4	23	18	*Skin Disease, &c.*	1	7	17	22
Influenza	1	0	23	10	Premature Birth	—	—	—	—
Dysentery	9	6	82	63	Cyanosis	—	—	6	4
Diarrhœa	39	52	434	377	Spina Bifida	—	—	—	—
Cholera	10	7	55	47	Other Malformations	—	—	4	—
Ague	3	4	23	19	Teething	—	—	—	—
Remittent Fever	1	—	9	8	Paramenia	15	16	124	114
Rheumatism	149	166	1003	942	Old Age	—	—	—	—
Other Zymotic Diseases	1	3	3	6	Atrophy and Debility	39	23	344	312
Syphilis	46	34	170	177	Fractures and Contusions	61	73	293	310
Stricture of Urethra	—	—	—	—	Gunshot Wounds	—	—	7	4
Hydrophobia	1	—	7	2	Cut, Stab	6	—	18	8
Glanders	—	—	2	3	Burns and Scalds	19	24	169	153
Privation	10	8	19	18	Poison	8	13	52	46
Want of Breast-milk	—	—	—	—	Drowning	36	38	237	186
Purpura and Scurvy	11	11	68	78	Suffocation	5	6	37	46
Alcoholism { a Del.Trem. b. Intemp.	36	37	210	234	Otherwise	13	15	49	54
					Murder & Manslaughter	4	9	47	66
Thrush	—	—	—	1	Gunshot Wounds	—	—	1	—
Worms, &c.	6	1	19	16	Cut, Stab	18	11	49	50
Gout	6	7	30	33	Poison	14	18	56	67
Dropsy	70	52	529	519	Drowning	20	21	113	125
Cancer	668	409	3376	3466	Hanging	12	9	64	70
Cancrum Oris (Noma)	—	—	1	2	Otherwise	6	4	14	24
Mortification	9	4	63	37	Hanging	—	—	1	—
Scrofula	36	27	346	327	Other violent deaths	3	4	21	14
Tabes Mesenterica	16	17	257	267	Sudden Deaths (Cause unascertained)	1	5	294	242
Phthisis	3292	3287	21226	20061					
Hydrocephalus	11	14	115	103	Causes not specified or ill-defined	15	7	259	148
Cephalitis	76	76	671	609					
Apoplexy	326	367	1849	1920	Gastritis	24	29	219	202
Paralysis	183	171	2966	1081	Enteritis	31	42	368	343
Insanity	19	17	191	167	Peritonitis	119	116	799	672
Chorea	2	3	32	23	Ascites	25	26	121	116
Epilepsy	116	95	879	801	Ulceration of Intestines	46	40	308	336
Convulsions	2	8	50	41	Hernia	43	24	175	150
Brain Disease, &c.	175	135	999	855	Ileus	28	31	224	243
Pericarditis	36	28	187	151	Intussusception	7	9	65	59
Aneurism	21	26	90	94	Stricture of Intestines	18	20	79	82
Heart Disease, &c.	908	827	5779	5737	Fistula	3	6	17	30
Laryngitis	39	11	189	110	*Stomach Disease, &c.*	46	39	371	333
Bronchitis	742	601	3912	3012	*Pancreas Disease, &c.*	—	—	2	1
Pleurisy	32	42	286	249	Hepatitis	61	50	397	359
Pneumonia	425	346	2648	2195	Jaundice	24	32	177	183
Asthma	84	64	370	319	*Liver Disease, &c.*	289	290	1503	1580
Lung Disease, &c.	80	67	560	420	*Spleen Disease, &c.*	4	2	22	16

CHAPTER I.

PRELIMINARY CONSIDERATIONS.

CHILDBIRTH is a natural physiological process. Though not a disease, it is to the mother always one of the most perilous and critical epochs—to the child it is the most important. By the act of parturition the child, which previously absorbed its nutriment from the mother, receives a separate existence, and now takes both nutriment from her milk and also oxygen from the air. All are agreed that childbirth may be attended by considerable risk. It is therefore a period of considerable anxiety to the mother, to her husband, to the doctor, and to the friends. A certain number of deaths from divers causes must be expected. There are, and there always will be, cases which foil the most consummate skill. There are difficult cases which defeat the ordinary practitioner and midwife. What the woman has to go through is a great ordeal—a woman in travail is characterised as having to bear the greatest of **all pain.** Deaths are therefore inevitable. What the normal death-rate is has not yet been made out; but there are various causes which lead us to expect to meet death. We have, for example:—

TABLE II.—*Enumerating Physical Conditions which have to be taken into account in reckoning the Liability to Danger in Parturition.*

Pronounced diatheses, or states of the constitution { Asthenic extreme type. / Sthenic extreme type.

Habits and Temperament.

Physical condition of the body { Formation of bony parts, natural or deformed. / ,, soft ,, ,, ,

Disease { 1. Of the reproductive organs, tumours, &c. / 2. ,, organs not connected with reproduction, of heart lungs, &c.

Intercurrent disease, *e.g.*, scarlatina supervening upon childbirth, &c.

Mental conditions
- Unmarried
 - Murderous influence of shame.
 - ,, ,, seduction.
 - Slighted love.
 - Deserted, forsaken, outcast, friendless, homeless.
- Married
 - Unhappy marriages.
 - Difficulties connected with life's battle.
 - Want of success.
 - ,, hope.
 - Anxiety from many causes, grief, &c.

Drunkenness.
Sanitary condition of the home, hospital, hut, union.
Management of ,, ,, ,, ,,
State of rooms, beds, bedding, &c.
Class of patients—grade, caste, nationality, inter-marriage, or cross-marriage.
State of health as related to pregnancy and the puerperal state.
Natural and unnatural labours.
The age, the number of pregnancy, date of the last, &c.
The duration of labour.

Cause of Death often not precisely Known or Stated.—From the simple enumeration of the above it is easy to see how these conditions are intimately associated with and may influence, even in a remote way, the cause of death, and how extremely difficult it is to know what precise value to attach to the different headings of deaths—Metria, Accidents of Childbirth, and Non-puerperal. It is just here where our first difficulty springs. Then, again, a death often is not due to one cause only; hence arises in the mind of the physician, what ought he to attribute it specially to in his official certificate of death?

Conditions affecting Lying-in Hospitals specially.—It is clear from looking at the list already given, that the only conditions particularly likely to affect hospitals disadvantageously, in comparing their mortality to that which occurs outside them, are unnatural labours, the sanitary state of the hospital, its management, and perhaps the condition of the unmarried, which condition indeed affects workhouses equally or even more so. Against this we must set off superior skill, **constant** attendance, regularity, &c.—in fact, hospital regime.

So as to have clearer views, and to leave no ambiguity in the mind of the reader, we think it well to introduce at once here in full, first, the usual "Medical Certificate of the Cause of Death," with the "Notice" printed upon the back of each certificate. Second, "Suggestions to Medical Practitioners respecting the Mode of Returning the Causes of Death."

Counterfoil for the use of the Medical Attendant, who should in all cases fill it up.

Name of Deceased

Age

Last seen

Died on

At

Cause of Death :—

(*a*).....

(*b*).....

Signed

Date

Certificate of Cause of Death.

I. MEDICAL CERTIFICATE of the CAUSE of DEATH.

To be given by the Medical Attendant to the Person whose duty it is to give it, with Information of the Death, to the Registrar of the Sub-District in which the Death took place, and TO NO OTHER PERSON.

I HEREBY CERTIFY *that I attended*.....

whose age was stated to be.....; *that I last saw h*.....*on the*.....*day of*

.....18.....; *that he Died* *.....*on the*.....*day of*

.....18....., *at*.....; *and that to the best of my knowledge and belief the Cause of h*.....*death was as hereunder written.*

* Should the Medical Attendant not feel justified in taking upon himself the responsibility of certifying the *fact* of Death, he may here insert the words "*as I am informed.*"

† The duration of each form of Disease or Symptom, is reckoned from its commencement until death occurs.

Cause of Death.	Duration of Disease.†			
	Years.	Months.	Days.	Hours.
(*a*) Primary				
(*b*) Secondary.....				
(*c*)				

Witness my hand, this.....*day of*.....18.....

Signature

Registered Qualification

Residence

N.B.—THIS CERTIFICATE IS INTENDED SOLELY FOR THE USE OF THE REGISTRAR, to whom it should be delivered by the Person giving information to him of the particulars required by law to be registered concerning the Death. *Penalty of £2 for neglect of Informant to deliver this Certificate to Registrar.*

*** The Registrar-General *cautions all persons* against *accepting* or *using* this certificate for any purpose whatever except that of delivering it to the Registrar.

NOTICE.

By Section 20 of the Births and Deaths Registration Act, 1874 (37 & 38 Vic., c. 88) it is enacted that :—

"In case of the death of any person who has been attended during his last illness by a registered medical practitioner, that practitioner shall sign and give to some person required by this Act to give information concerning the death, a certificate stating to the best of his knowledge and belief the cause of death, or giving notice of the death, deliver that certificate to the registrar, and the cause of death as stated in that certificate shall be entered in the register, together with the name of the certifying medical practitioner.

"Where an inquest is held on the body of any deceased person a medical certificate of the cause of death need not be given to the registrar, but the certificate of the finding of the jury furnished by the coroner shall be sufficient."

"If any person to whom a medical certificate is given by a registered medical practitioner in pursuance of this section fails to deliver that certificate to the registrar, he shall be liable to a penalty not exceeding forty shillings."

Persons qualified to be Informants for the Registration of the Death, and to whom only this Certificate should be given.

1. The nearest Relatives of the Deceased present at the death or in attendance during the last illness; and, in their default, any other Relative residing in the same Sub-district as the Deceased.

In default of all such Relatives—

2. Each person present at the Death and the Occupier of the House in which the Death occurred.

In default of all the persons above-mentioned—

3. An Inmate of the House in which the Death occurred, and the Person causing the Body to be Buried.

In addition to the Cause of Death as certified, the *Informant* must be prepared to state to the Registrar :—

(1.) The *date* and *place* of Death.

(2.) The *full names* and *surname* of Deceased.

(3.) The correct *age* of Deceased.

(4.) The rank, profession, or occupation of Deceased. [If deceased is a *child* or *a young unmarried person without occupation*, the full names and rank or profession of the *father* will be required; if a *wife* or *widow*, those of the *husband* or *deceased husband*.]

II. SUGGESTIONS TO MEDICAL PRACTITIONERS RESPECTING THE MODE OF RETURNING THE CAUSES OF DEATH.

(1.) State the causes of death in terms as precise and brief as possible; and use the names recommended in the Nomenclature of the Committee of the Royal College of Physicians. The space assigned for the entry in the Register Book will contain *about ten words*.

(2.) Write the causes of death, where there are more than one, under each other, *in the order of their appearance*, and not in the presumed order of their importance.

(3.) The *duration* of primary and secondary diseases in these returns will always be considered to *imply the time intervening between the first appearance* of well-marked characteristic *symptoms—and death*. Small-pox, scarlet fever, erysipelas, typhus, and all febrile and inflammatory diseases should, however, be dated from the rigors and first symptoms, not from the later appearance of the eruptions, &c. The time in the certificate, opposite the primary disease, will include the whole term of illness. Thus :—

scarlet fever, malignant	21 days
purulent infiltration	7 days (P.M.)

implies that the earliest symptoms of scarlet fever occurred 21 days before death ; and that purulent infiltration was observed 7 days before death. So,

hooping cough	16 weeks
paralysis of motor nerves (right side)	4 weeks
pneumonia	3 weeks

is understood to mean that symptoms of the cough appeared 16 weeks, of the paralysis 4 weeks, of the pneumonia 3 weeks, before death. Confusion has been produced in some returns by inattention to this point.

childbirth	4 days (*from commencement of labour to death must be invariably understood.)*
peritonitis	3 days (*from first symptoms till death.*)

childbirth	7 days
placenta prævia, with profuse hæmorrhage.	
diarrhœa	4 days

small-pox	23 days (*from first rigors till death is here understood.*)
convulsions	20 hours (*before death.*)
vaccinated with doubtful effect 3 years ago.	

small-pox (confluent)	21 days
first attack.	
vaccinated 8 years ago—one good cicatrix.	

(4.) **Whenever childbirth has occurred within one month before death it should invariably be registered in connection with the cause of death.**

(5.) The term "vaccinated" should be used in preference to "after vaccination." "Small-pox, vaccinated..... 21 days" is ambiguous because the question arises whether the period (21 days) refers to the disease or the vaccination.

(6.) By the method now recommended, the use of conjunctive particles and other unimportant words, is avoided. "Delirium tremens, brought on by

excessive drinking of spirituous liquors (6 days)," may be abridged with advantage thus :—

{excessive use of spirits ——
{delirium tremens 6 days

By the previous method it is not plain whether the *duration* (6 days) refers to the disease or the excess.

(7.) No attempt should be made to guess the duration of the *latent* stages of diseases ; but it will generally be possible to fix on one point of time near the access, when the patient had no *symptoms* of disease and on another, when the symptoms were unequivocal, if the disease be dated from the middle point of the intervening time, the results will admit of comparison. The duration should be stated in *minutes* or *hours*, when the disease is fatal in less than 48 hours ; in days, in diseases of less than 50 days' duration ; in months or years, in diseases of longer duration. *Month* is an inexact *measure* of time ; when used in the returns it will be deemed the *twelfth* part of a year.

(8.) State, in fatal cases of SMALL-POX, whether VACCINATION had been performed WITH EFFECT, and WHEN ; and in small-pox, measles, scarlet fever, typhus, rheumatism, mania, delirium tremens, apoplexy, and the like diseases, whether it be second, third, &c., attack whenever the patient has suffered more attacks than one. In ague, epilepsy, convulsive diseases, angina pectoris, syncope, and other maladies, which occur in fits or paroxysms, date the illness from the first fit ; and add the duration of the last fatal fit ; thus, *epilepsy, 5 years ; last fit 6 hours.*

(9.) SURGEONS, in all cases of operation, should return (*a*) the primary disease or injury—(*b*) the kind of operation—(*c*) the secondary diseases—such as erysipelas, purulent deposits, &c., and should state also the time from commencement of the primary disease—the time from the operation—and the time from the appearance of secondary disease, *reckoning in each instance to the death.* Example :

{femoral hernia 3 years
{strangulated 70 hours
{operation 60 hours
{peritonitis 45 hours
{heart and kidneys diseased (P.M.)

(10.) It sometimes happens that the nature of the fatal disease cannot be discovered even after a *post mortem* examination of all the organs—and still more frequently in the absence of an examination. *In such cases it is better to name one or more of the leading symptoms and peculiar appearances*, than to assign a specific cause on imperfect, inadequate evidence. P.M. should be added when the causes of death have been verified by a post mortem inspection.

All we think it necessary to say at present respecting these forms is, that "suggestion" No. 4, under the second head, which is of special importance to us in this enquiry, is kept "more in the breach than in the observance." In fact, these suggestions are not attended to by medical men, who are generally on such occasions too busy, and who have often their attention fully occupied otherwise, and who consider

the obvious or prominent symptoms of the disease enough. Frequently they have forgotten the existence of such a suggestion, or that there is such an obligation upon them. Certificates of the cause of death are not so carefully made out as could be wished. The relaxation after the strain from anxiety, &c., is inimical to precision and accuracy; and so prominent symptoms are sometimes put down instead of the disease itself. After one spends weeks in trying to save the patient, it is perhaps deemed enough, in some cases, to note only so much as to satisfy the Registrar that the death was due to natural causes.

STATISTICS: THEIR USES AND ABUSES.

Statistics require judicious and careful handling.—One of the chief considerations had recourse to for settling the present enquiry is statistics. This, as we shall see, however, is not the only method for arriving at the truth in regard to our present enquiry. Great care is required in dealing with statistics. Errors in statistics lead to fearful conclusions; in fact, you may, as is often done, prove what you wish by arranging your statistics. Manifestly we cannot dispense with the use of them, and when carefully and rightly used, they afford the most satisfactory evidence in an enquiry pertaining to the comparative safety of different hospitals, as well as throwing light upon home practice. The great difficulty in dealing with our present statistics arises from the fact that the causes of death cannot be so accurately ascertained as is requisite for an exact comparison. But this is a difficulty which is to a great extent insurmountable, and makes the result only an approximate one at the best. (See pp. 7, 50, 163.)

Data of Obstetric Practice better adapted for Statistical Calculation than Data from either Medical or Surgical Practice.—Midwifery statistics, however, are quite in as satisfactory a condition as either medical or surgical. Parturition is a natural process, with well-known laws, and there is therefore a unity about childbirth nowhere else met with in the whole range of medical science.

What constitutes valuable Statistics.—Statistics are valuable according as the following requisites are complied with:—

1. The data for comparison must be uniform, similar, obtained from trustworthy and authenticated sources—not collected, having preconceived ideas as to the result.

2. The data must not be assorted or selected for arriving at average results.

3. The data must be on a large scale, to cover inequalities and temporary fluctuations.

4. The data should extend over a number of years—5 at least, better 10 and upwards.

Bad Statistics cannot lead to true Deductions.—Figures sometimes are very misleading. Dr. Kennedy therefore says, "One could tell lies with figures as well as with words, and bolder ones." Dr. Duncan says, "I do not rely entirely on figures, they are very deluding." And again, "Figures cannot settle a question like that before us." Largeness in the numbers does not always remove sources of error in striking averages—it is indeed possible that largeness in the numbers leads to larger errors—notwithstanding, it is necessary to have large numbers, if got from trustworthy sources. Most depends upon the reliability of the source from which the numbers are obtained.

It is on this account that we mainly rely upon the materials obtained from British hospitals. The data on the Continent are different in several important respects from ours. The mortality appears high, but then we do not know what deaths are included. We know that women go more freely into hospital abroad than they do here. There, many of the lying-in hospitals are connected directly with, or are part of, the general hospitals, and when a patient becomes ill after childbirth, she is transferred into the general department. Sometimes, women return to the lying-in department, after having been discharged, if affected with a puerperal disease. Altogether it is more difficult to trace the deaths abroad to a definite cause than it is here, so as to make the statistics comparable to ours.

What Statistics can and cannot affect.—Broadly, we may state that—

1. There is information which statistics alone can settle.

2. There is another kind of information in which statistics may help to corroborate or confirm an opinion, or the reverse.

Lastly, there is a third kind whereby knowledge is obtained, and in which statistics cannot help us towards a conclusion at all. We form our opinion and views by instinct, reason, observation, &c.

Thus, we could not know the information conveyed in Tables III. and IV. except by the aid of statistics and statistical calculations alone. Any other method of calculating the number of people in these islands, or obtaining the death-rate, would be inaccurate—simply guess-work.

TABLE III.—*Showing Estimated Population, Females, Births, Illegitimate Children in England* (1877).

	Population.	Females.	Births.	Illegitimate Children.
In England and Wales ...	24,547,309	12,598,682	888,200	42,155

TABLE IV.—*Deaths referred to Childbirth, and Mortality per* 1000 *Children Born Alive, in each of the Counties of England in the year* 1876. (Report of the Registrar-General.)

No.	Registration Counties.	Registered Births of Children Born Alive.	Number of Deaths referred to			Deaths of Mothers, to 1000 Children Born Alive, from		
			Metria and Child-birth.	Metria.	Acci-dents of Child-birth.	Metria and Child-birth.	Metria.	Acci-dents of Child-birth.
	ENGLAND	887,968	4,142	1,746	2,396	4·7	2·0	2·7
	I.—LONDON	127,444	585	264	321	4·6	2·1	2·5
	II.—SOUTH EASTERN COUNTIES.							
1	Surrey (*extra-metropol.*)...	13,099	60	24	36	4·6	1·8	2·8
2	Kent (*extra-metropol.*) ...	22,184	77	30	47	4·5	1·4	2·1
3	Sussex.....	13,670	57	23	34	4·2	1·7	2·5
4	Hampshire.....	17,221	87	28	59	5·1	1·6	3·5
5	Berkshire	7,570	29	10	19	3·8	1·3	2·5
	III.—SOUTH MIDLAND COUNTIES.							
6	Middlesex (*extra-metro.*)..	10,410	45	15	30	4·3	1·4	2·9
7	Hertfordshire	6,402	31	13	18	4·8	2·0	2·8
8	Buckinghamshire	5,241	20	4	16	3·8	0·8	3·0
9	Oxfordshire	5,799	19	7	12	3·3	1·2	2·1
10	Northamptonshire	9,307	39	18	21	4·2	1·9	2·3
11	Huntingdonshire	1,786	7	2	5	3·9	1·1	2·8
12	Bedfordshire	5,210	23	11	12	4·4	2·1	2·3
13	Cambridgeshire	6,264	29	11	18	4·6	1·8	2·8
	IV.—EASTERN COUNTIES.							
14	Essex	16,679	63	27	36	3·8	1·6	2·2
15	Suffolk	11,202	62	25	37	5·5	2·2	3·3
16	Norfolk	13,388	70	29	41	5·2	2·2	3·0
	V.—SOUTH WESTERN COUNTIES.							
17	Wiltshire	7,704	47	21	26	6·1	2·7	3·4
18	Dorsetshire	5,492	21	8	13	3·8	1·5	2·3
19	Devonshire	17,981	77	28	49	4·3	1·6	2·7
20	Cornwall	10,074	49	15	34	4·9	1·5	3·4
21	Somersetshire	15,375	62	21	41	4·0	1·4	2·6

TABLE IV.—*continued.*

	Registration Counties.	Registered Births of Children Born Alive.	Number of Deaths referred to			Deaths of Mothers, to 1000 Children Born Alive, from		
			Metria and Child-birth.	Metria.	Acci-dents of Child-birth.	Metria and Child-birth.	Metria.	Acci-dents of Child-birth.
	VI.—WEST MIDLAND COUNTIES.							
22	Gloucestershire	17,021	87	33	54	5·1	1·9	3·2
23	Herefordshire	3,434	23	6	17	6·7	1·7	5·0
24	Shropshire	8,674	53	23	30	6·1	2·7	3·4
25	Staffordshire	40,884	156	69	87	3·8	1·7	2·1
26	Worcestershire	12,749	52	23	29	4·1	1·8	2·3
27	Warwickshire	26,314	97	38	59	3·7	1·4	2·3
	VII.—NORTH MIDLAND COUNTIES.							
28	Leicestershire	11,744	42	15	27	3·6	1·3	2·3
29	Rutlandshire	714	2	1	1	2·8	1·4	1·4
30	Lincolnshire	14,977	72	27	45	4·8	1·8	3·0
31	Nottinghamshire	15,527	72	31	41	4·6	2·0	2·6
32	Derbyshire	14,249	62	32	30	4·4	2·3	2·1
	VIII.—NORTH WESTERN COUNTIES.							
33	Cheshire	20,967	101	52	49	4·8	2·5	2·3
34	Lancashire	126,484	580	264	316	4·6	2·1	2·5
	IX.—YORKSHIRE.							
35	West Riding	81,220	412	175	237	5·1	2·2	2·9
36	East Riding (with York)	12,193	50	27	23	4·1	2·2	1·9
37	North Riding	12,438	57	18	39	4·6	1·5	3·1
	X.—NORTHN. COUNTIES.							
38	Durham	36,500	175	60	115	4·8	1·7	3·1
39	Northumberland	16,697	82	34	48	4·9	2·0	2·9
40	Cumberland	8,324	15	29	21	6·0	3·5	2·5
41	Westmoreland	2,050	11	4	7	5·4	2·0	3·4
	XI.—MONMOUTHSHIRE AND WALES.							
42	Monmouthshire	9,036	34	10	24	3·8	1·1	2·7
43	South Wales	31,876	186	81	105	5·8	2·5	3·3
44	North Wales	14,394	127	60	67	8·8	4·2	4·6
1877	LONDON	128,092	445	221	224	3·47	1·73	1·74
,,	ENGLAND	888,200	3,343	1,444	1,999	3·8	1·6	2·2

Again, we may instance as an example of the second mode of acquiring information, that statistical calculations are useful in confirming our views; and by enabling us to compare like with like, we may obtain better and more accurate results. Thus we may have an impression that more rain has fallen in one season of the year than in another; but our opinion, based on observation and memory, may be mistaken, and requires the aid afforded by meteorological tables to keep us right. Part of our present enquiry will also come under this head: *e.g.*, statistics may be very useful in setting at rest and clearing our views concerning the superiority of one hospital over another, so far as given tests can effect this. But if statistics are thus useful to guide us under certain circumstances, it is evident they might mislead us if on too small a scale. They might not be large enough to afford satisfactory proof of the correctness of the result.

Lastly, there are views which are not obtained, nor can they be altered, by statistics, except as aforesaid. In this category we place the value of hospitals. Instinct, reason, and observation are enough to convince us that hospitals are requisite and valuable. We put matters of necessity in a category by themselves. We say charitable institutions are necessary for a certain class of the community, and if evils prevail in hospitals, statistics do not prove that hospitals are unnecessary because, *e.g.*, the death-rate is high, but that some reform therein is essential. Statistics are therefore useful in bringing this to light, in order that a remedy may be provided. That is to say, statistics tell us the death-rate in any particular hospital is so high that the hospital must be condemned; but they cannot prove that it should not be replaced by one on a proper basis. Statistics are invaluable in pointing out the relative safety of hospitals.

The Mortality Test inadequate.—Death-rate has been taken as the only test for the settlement of this question, but the problem of whether a hospital is useful or not cannot be solved by statistics of death-rate alone, or, indeed, it may be affirmed, in one sense, not at all. Experience tends to show that even these institutions are required, though the death-rate continues very high. What precise bearing have statistics therefore upon this question? Avowedly, this class of institutions cannot be destroyed or dispensed with, even though the death-rate be appalling. Continental experience points to this. But statistics, by showing the high death-rate, may help to expose, in such a forcible manner, the evils prevalent in them, and thus

in the end lead us to eschew or attempt to lessen at least one of the causes of the mortality. It is a great matter if we can succeed in arresting attention. But, on the other hand, it may be said, suppose that these hospitals carry off our lying-in women in large numbers, are we justified or right, at such a cost, in maintaining these institutions for supposed advantages—some of which are admitted, others are questionable or doubtful? There is a great deal of speculation, conjecture, and *supposes* introduced by those who argue in this fashion. There is far too much of partyism or extremeism introduced into this question. A jumping from the one conclusion to the other. A good and able example of this mode of reasoning is seen in a letter from Mr. J. D. Goodman (Chairman of the Birmingham Lying-in Charity), in the *British Medical Journal* of June 7, 1879. He shuns the whole question at issue by accepting the result without enquiring into the circumstances on which it is based. What would be considered of a transaction on this principle in the mercantile world? Do not indirect gains more than make up for direct exceptional losses? Let us hope that the spirit of wisdom has not died with Solomon. The first question we should ask ourselves is, why were such institutions as these erected nearly a century and a half ago? *Because* our ancestors saw they were needed; and good and humane and benevolent men erected them. Before there were these hospitals women had their homes, but our forefathers thought these were insufficient, inadequate, incompetent. We, for our part, think so still. The experience of more than a century is upon our side in favour of supporting these institutions. We ought, however, to take advantage of a lesson from experience. Knowledge clearly points to something being required to enable us to diminish a mortality which our returns point at as being too high. That is to say, we ought to do our best to minimise the risks which attend parturition, by causes which are more or less under influences connected with bad construction and inefficient management, and therefore in a measure preventible.

Dr. Le Fort's Statistics.—However tedious it may be to dwell longer upon this question of statistics, still it is nevertheless essential for us to come to closer quarters about them than seems to have been done in the literature of this subject in the past. At least, we must try to remove every stumbling-block out of the way so far as we can. Therefore, before leaving this part of the subject, it may be well to examine this question a little more minutely. With the view of show-

ing the unsatisfactory position of the data produced, we give the table of Le Fort's annexed.

TABLE V.—*Showing the Death-rate from all Causes amongst Women Delivered in their own Homes.* (*Abstracted from* DR. LE FORT'S *Tables*, MISS NIGHTINGALE.)

Place.	No. of years of observation.	Deliveries.	Deaths.	Deaths per thousand.
Edinburgh	1	5,186	28	5
London :—Westminster General Dispensary	11	7,717	17	2
,, Ditto Benevolent Institution	7	4,761	8	1
,, Royal Maternity Charity	5	17,242	53	3
,, Population	5	562,623	2,222	3·9
,, St. Thomas's Hospital	7	3,512	9	2·5
,, Guy's Hospital	8	11,928	36	3
,, Ditto	1	1,505	4	2
,, Ditto	1	1,702	3	1·7
,, Ditto	1	1,576	11	6
Paris :—Twelfth Arrondissement	1	1,322	10	3
,, Bureau de Bienfaisance	1	6,212	32	5
,, Ditto	1	6,422	39	6
,, City of Paris	1	44,481	262	5
,, ,,	1	42,796	226	5
Leipzig Polyclinique	11	1,203	13	10
Berlin ,,	1	500	7	14
Munich ,,	5	1,911	16	8
Greifswald ,,	4	295	6	20
Stettin ,,	17	375	0	0
St. Petersburg	15	209,612	1,403	6·6
Total	—	934,781	4,405	4·7

What value can we attach to the Data in Le Fort's Table ?—On the most cursory inspection of the above table it is evident that to obtain anything like an average result the statistics given are unsuitable. Thus, for example, it is curious to observe that part of the table referring to London. In it we have London population at 3·9 per 1,000, for a series of five years, certainly a low average for London. Indeed, it appears to us to be *selected;* at all events it would be satisfactory in all such cases to have the years stated of which this is the death-rate. Further, how Le Fort can introduce in the same reckoning, Westminster, the Royal Maternity Charity, St. Thomas's Hospital, and Guy's Hospital, having once stated what London is in the large sense, seems inexplicable for striking an

average. Moreover, to obtain a mean, observations of one year can never prove much; certainly it could not be considered accurate or conclusive. Years vary so much, even when large numbers are obtained. This may be seen by a glance at the accompanying table.

TABLE VI.—*Showing Mortality of Childbed, proportion of Non-puerperal Deaths to Metria and Childbirth, and Metria to Total Mortality.*

Years.	No. of Births.	Deaths from Metria.	Deaths from Childbirth.	Deaths from Non-Puerperal Causes.	Total Deaths in Childbed.	Death-rate of Metria and Childbirth.	Total Death-rate.	Ratio of Non-Puerperal Deaths to Metria and Childbirth Deaths.	Ratio of Metria to Total Deaths.
1875	850,607	2,504	2,560	1,207	6,271	1 in 166	1 in 135	1 in 4·2	1 in 2·5
1876	887,968	1,746	2,396	1,034	5,176	1 in 216	1 in 171	1 in 4	1 in 3
1877	888,200	1,444	1,999	1,270	4,612	1 in 265	1 in 192	1 in 2·7	1 in 3·2
TOTAL	2,626,775	5,694	6,955	3,511	16,059	1 in 209	1 in 163	1 in 3·5	1 in 2·8

The Data of the Registrar-General preferable to those of Le Fort.—We have little hesitation, therefore, in stating that it is far safer, and more expedient, to rely upon the results of the Registrar-General, whose data are not selected, are large, and embrace a number of years, though we admit, no doubt, the result which Le Fort has obtained is not far from that of the Registrar-General in this particular. Still, as a matter of principle, we protest against the use of such data, and consider them quite unworthy of the reliance placed upon them.

Authors receiving and fairly utilising the Deductions or Statistics of others in support of their own ideas, should examine the soundness of the Data, and ought to accept them or not use them.—There is far too much now-a-days a-taking for granted the results of the calculations and statements of others without examining them, and blandly avowing at the same time that they (authors) do not hold themselves responsible for the correctness of the data. This is not right. In order to have a conclusive test we ought to have a much larger field of observation than Le Fort gives. If different countries are to be taken in, the period should be far longer than one year, and the localities should not be selected. Besides, we must not have the data mixed in the precise way Le Fort has done. He seems to have selected the localities.

Thus he has taken those having the lowest death-rate and mixed them up with localities having high death-rates. It is well known, *e.g*, that the Royal Maternity Charity in London and the other data under the head London are exceptionally low in the death-rates recorded, so much so that many well able to judge question the reliability of the data of these institutions.

Statistics should embrace Data from a broad sound basis.—Again, if it be considered competent to include different countries in the calculation, as is done in finding out the death-rate in hospitals, surely it would be an easy enough matter for Le Fort to have obtained returns of most other nations similar to those of our Registrar-General for these islands. On this account we think there is a show of partiality evinced in the data tabulated. Should it be objected to that the Registrar-General's tables in other nations include the mortality of hospitals as well as home practice, even this should not alter the case, for Le Fort gives London, which must include the lying-in hospitals, but he adds doubtful data also. Altogether his tables are unsatisfactory, and we cannot too strongly express regret at their being approvingly quoted by Sir J. Simpson, Dr. Kennedy, and Miss Nightingale; indeed Le Fort's calculations form the basis of their attack. Le Fort's table showing home practice is deficient or faulty in each of the four aspects in which we are inclined to regard statistics reliable, as furnishing an approximation to accuracy and usefulness. See page 13.

Reliable Data may be wrongly applied.—It is possible also that statistics may be used to have other than a salutary effect. We know that no general rule can be drawn from scanty data. We know that with large data, when mixed injudiciously, erroneous conclusions follow. We are aware also that if data are to be worth anything they ought to be on a large scale and from a sound source. But with large data it is questionable if the results obtained are not liable to misconstruction, particularly when mixed up with small data. This view is brought out in Table XL. (page 98). Here the large numbers of the Dublin Rotunda Hospital are comparatively little affected by the data from the other hospitals, although their mortality, as a rule, is far higher. If, therefore, the death-rate in the Dublin Hospital is high the total result will be high, and *vice versa*. Care therefore is necessary in handling statistics. Obviously we might so arrange our statistics as to make them support us whether right or wrong. Large data swamp the small, so that the result will come out pretty much

according to the success or failure of the largest data. In such a case different data had better be treated separately.

THE DATA FURNISHED BY THE REGISTRAR-GENERAL.

The Registrar-General is the Representative of the Profession.—The result, that is, the total number of deaths, &c., is the collective voice of the profession on the subjects as spoken by their mouthpiece, the Registrar-General. Consequently the tables in the Annual Reports are of the highest value—a value quite their own. This voice may not be telling the truth. It may convey a false impression. Truth is not always to be found in the mouths of the public at large. Errors and mistaken or misguiding ideas may be conveyed in various ways.

Errors in Registration.—It is well at this point to observe some of the perhaps unavoidable causes of error in the result of the registration of deaths. First, there are cases of obscurity or complication, concealing in life the real diagnosis of the disease. It is competent—nay, there is room, therefore, for obstetricians to differ as to which is the right category for a particular case to be placed in. Second, errors of judgment, whereby a practitioner gives the primary for the secondary cause of death, or *vice versa*. See page 9. Third, errors of concealment, suppressing the real cause, and substituting a fancied one, remote or altogether false. Fourth, the want of a definition of the disease which will meet with general acceptance. Fifth, ignorance.

It will be clear to any one conversant with this subject that these causes of error are common to all classes of disease—medical, surgical, or obstetrical.

It may not be out of place here to introduce one or two examples. We take the first from the report of the Registrar-General. Dr. Farr, after commenting in high terms of commendation on the care exercised in certain quarters in regard to skill and registration, gives the following example of

Error in Registration from Ignorance.—"The following is an instance of a different practice which was brought under the notice of this office; it throws light on some of the deaths by hæmorrhage. A death from childbirth occurred in the Outer Ring of London on January 13th, and enquiries were made of the Registrar. He writes on

the 24th, or eleven days after the death: 'This evening I have just registered a death from childbirth, and enclose the certificate.' Omitting names, the certificate runs thus:—

"I hereby certify that I attended ————, whose age was stated to be twenty-nine years; that I last saw her on the 13th day of January, 1878; that she died on the 13th day of January, 1878, at ————; and that, to the best of my knowledge and belief, the cause of her death was as hereunder written:

"(*a*) Childbirth; (*b*) extreme exhaustion; (*c*) from *anæmia of the heart* (four hours).

"Witness my hand this 13th day of January, 1878.

"——— Registered qualification, L.R.C.S.E.

"Residence, ————."

Comments on Mal-practice.—"'Anæmia of the heart' is an unusual term, and further enquiry was made; it apparently meant 'absence of blood from the heart,' which could only have resulted from hæmorrhage, but this was not explicitly stated. The L.R.C.S.E. expressed the greatest sympathy with the father of the lady, as she was a personal 'friend of my wife and myself.' He attended promptly, and the fine child was safely born after a short, natural labour. In such another case he would, he writes, certainly adopt the same kind of treatment. The following history of the case is given in the husband's sad, but simple words.

"It should be stated that the delay, to be much regretted, in the registration led to the burial without a registrar's certificate by the curate of the Rev. ———, of ———, in the small cemetery of that place. In sudden deaths inquests may be held; and registrars are instructed to communicate with the coroners in certain cases; on this account the death should invariably be registered before burial, as an inquest can only be held 'on view of the body.'

"In recollecting her pale lips and blanched cheeks as she lay, the tears rushed to her father's eyes.

In questa forma
Passa la bella donna e par che dorma.

"Such fearful cases should be judged by the Medical Council."

Estimating Cost of Life—Economic Value.—Dr. Farr adds—"The 2,601 deaths annually in England in childbirth over those 2,009 that appear inevitable in the present state of obstetrical art

are found in all classes of life; for Byron wrote in error when, in the stanzas on the death of the Princess Charlotte, he sang 'Peasants bring forth in safety.' This lady had studied in Cambridge for three years, and the principal of ——— Hall writes of her many distinctions in the University examinations. All was dashed to the earth in three hours. It is impossible to estimate the value of such a life, so precious to her parents, husband, friends by whom she was beloved, and to her child, 'the darling.' But she had just been appointed principal to a new training college for teachers, at a rising salary of £300 a year, and the value of that can be calculated. It was not less than £2,900; that sum might have been claimed from the directors of a railway company for such a life lost by the accidental negligence of one of their servants.

"What the economic value is of all the women's lives lost annually by uninstructed midwives or unskilful surgeons it is impossible to calculate without investigating the facts of each case; it must be large. This is one example."

There can be no doubt of the justness of the remarks made by Dr. Farr upon the case. The L.R.C.S.E. was an illiterate medical man. The question of mal-practice in the case, as narrated, is one that might or might not be supported.

Public Opinion upon Death in Childbed.—"The death of a woman in childbed, as everyone here well knows, always attracts a great deal of attention, and is a fertile subject for popular comment and animadversion: but, if the cause of death is known to be puerperal fever, or anything pertaining thereto, then, indeed, quite a panic is created in the neighbourhood, and both doctor and nurse come in for more than their full share of blame. Hence, for their own reputation's sake, as well as with the charitable motive of not alarming all the pregnant women in the community, the death is imputed to any other possible cause rather than to the dreaded puerperal."

We can give a more curious case still — not curious because we are of opinion that there was any necessity for an enquiry into the conduct of the treatment, that probably could not be much different or found fault with in the case to be narrated — the physician being more than ordinarily well up—but because it will be interesting at present on account of its illustrating errors which, we fear, are more common than is generally supposed. One and all of the causes of death falsely certified are due to a principle similar, if not

identical with that contained in the above paragraph, so ably expressed by Dr. M'Clintock.

We think, however, that more blame is attributed when the death occurs from an "accident" of childbirth than from puerperal fever—unless two or three mothers in quick succession die under one doctor, and then he catches it sharp—his character, his skill, his public and private virtues or vices, his misdeeds or good deeds from boyhood up to the present, his parentage, his domestic affairs, all are overhauled and canvassed, *pro* or *con*, according to circumstances, and he is the subject of gossip all round the neighbourhood. Such a death occurring in the case of a young practitioner is almost fatal to his success—a panic spreads at once which would greatly damage his prospects. Such is the public state of feeling in regard to this matter.

Heart Disease returned for Rupture of Uterus.—We give the following case in the concise words of the doctor himself:—"I was sent for on a Sunday morning, about ten, but had to ask a neighbouring medical man to attend, as I had another case in hand. My own case over, I called to see the other, and found the os of the size of half-a-crown. This was at six in the evening. My friend then handed the case over to me, and it went on quite naturally, the pains, however, very strong, and was finished about two the next morning.

"The only thing that attracted my attention at the time was a peculiar quick, catching respiration, which came on immediately after the last expulsive effort. I thought at the time it was simply due to exhaustion, but waited an hour with her. The breathing gradually got better, although not quite natural, and I left her, after having ordered fifteen minims of liquor morphia and the same of spiritus chloroformis every four hours. The pulse was quick, but I cannot remember the exact rate.

"I was sent for suddenly the next morning, but found life extinct. This was about nine o'clock.

"I learned from the friends that she had never slept; that her breathing had got worse after I left; and that she had attempted to get out of bed several times."

Upon the doctor asking us what was the cause of death in this case, we replied, that it was difficult to form an opinion, not having seen the case; but if we were going to hazard a conjectural opinion, we should say the death was due to **rupture of the uterus.** "So do I," the doctor replied, "but I did not tell them that; I said it was due to heart disease,

and it went down." And he adds: "I learned that there was some suspicion of the heart not being quite right, so I jumped at that, and put the cause of death down as heart disease, although, in my own mind, I think it was rupture of the uterus."

There can be no doubt the doctor was to blame for certifying the cause of death as above, but it would be hard to make the few suffer for the many, and this instance is simply introduced here to point out the way that error creeps in, and how careful one must be in drawing conclusions from statistics.

Death-rate only approximately attainable, and for our purpose this must be "Childbed" Deaths.—It is difficult to precisely estimate the value to put upon such errors as the former; no doubt they ought to be taken into account. But these and the like render it perfectly impossible to obtain **accurately** the deaths of childbirth, which is the quantity we ought to get. For our object this quantity would not be of much service, as our hospital-records do not afford the ground for making such a comparison; so that the only course left to us in this enquiry is to obtain the deaths **in** childbed, *i.e.*, deaths due to whatever influences, between the commencement of labour and four weeks thereafter.

Object: Compare Results, so as to find out causes of excessive Metria Mortality.—Childbed deaths, for our purpose, will be sufficient to enable us to obtain a tolerably fair comparison. Our object is to find out the approximate mortality of childbed, so that we may compare the results obtained in lying-in hospitals with those obtained elsewhere, with the view, if possible, of finding out the causes of metria mortality in hospital and lessening the same.

Non-puerperal Deaths must be included to enable Results in and out of Hospital to be compared.—From the table

TABLE VII.—*Deaths in England in 1875 of Women after Childbearing, classed under various Diseases, and not referred either to Childbirth or to Metria in the Abstracts.*

Causes of Death.	All Ages.	Ages.				
		15—	20—	25—	35—	45 and upwards.
TOTAL	1201	27	225	554	377	18
CLASS I.						
Small-pox	16	—	9	4	3	—
Measles	3	—	—	1	2	—
Scarlet Fever	60	1	14	35	10	—
Diphtheria	9	—	4	3	2	—
Quinsy	2	—	1	1	—	—
Typhus Fever	3	—	1	1	1	—

TABLE VII.—*continued.*

Causes of Death.	All Ages.	Ages.				
		15—	20—	25—	35—	45 and upwards.
TOTAL	1201	27	225	554	377	18
Enteric or Typhoid Fever..	70	3	16	37	14	—
Simple Continued Fever ...	6	—	—	5	1	—
Erysipelas	17	—	3	8	6	—
Carbuncle	2	—	—	1	1	—
Dysentery	9	—	1	5	3	—
Diarrhœa	63	3	11	24	22	3
Cholera	1	—	—	1	—	—
Ague	2	—	1	1	—	—
Remittent Fever	1	—	—	—	1	—
Rheumatism	18	1	5	6	6	—
Syphilis	6	1	3	1	1	—
Privation	1	—	1	—	—	—
Purpura and Scurvy ...	1	—	—	—	1	—
Delirium Tremens... ...	1	—	—	1	—	—
CLASS II.						
Dropsy	5	—	1	3	1	—
Cancer	4	—	—	—	4	—
Scrofula	1	—	—	1	—	—
Tabes Mesenterica ...	2	—	1	—	1	—
Phthisis	205	6	34	110	54	1
Hydrocephalus	1	—	1	—	—	—
CLASS III.						
Cephalitis	11	—	1	7	2	1
Apoplexy	27	2	3	3	17	2
Paralysis	14	—	3	4	7	—
Chorea	3	—	3	—	—	—
Epilepsy	7	—	3	3	1	—
Pericarditis...	9	2	3	3	1	—
Heart Disease	121	—	16	52	52	1
Laryngitis	7	—	1	3	3	—
Bronchitis	121	2	17	43	54	5
Pleurisy	26	—	7	11	8	—
Pneumonia	216	2	40	121	50	3
Asthma	8	—	1	3	4	—
Lung Disease	23	1	4	10	8	—
Gastritis	9	—	—	5	4	—
Enteritis	9	—	2	2	5	—
Ulceration of Intestines ...	4	—	1	1	1	1
Hernia	1	—	—	1	—	—
Ileus...	2	—	1	—	1	—
Intussusception	1	—	--	1	—	—
Stomach Disease	4	—	—	3	1	—
Hepatitis	6	—	1	1	4	—
Jaundice	10	—	1	6	3	—
Liver Disease	7	—	—	3	3	1
Nephritis	6	—	2	2	2	—
Bright's Disease (Nephria)	28	2	7	12	7	—
Kidney Disease	9	1	1	3	4	—
Joint Disease	1	—	—	—	1	—
Phlegmon	2	—	—	2	—	—

annexed it is evident that the Registrar-General thinks it his duty to connect a certain number of people whose deaths are more or less associated with, or caused by, child-bearing, although not returned so to the Registrar. In so far as our present enquiry is concerned this leads us to an additional source of error. The practitioner may be right in certifying that such deaths have taken place from the diseases named, but, inasmuch as the deaths have occurred after childbirth, it is no doubt true that in most cases gestation and parturition form *a* quantity in any estimate to be made of the cause of death. Here the question of primary, secondary, and tertiary causes comes in (see page 9). These non-puerperal deaths have no place in the Registration report as deaths of childbirth (metria and accidents).

Could some different Headings not be inserted in Certificate of Death?—For purposes of comparison, and, indeed, for greater accuracy in Registration, as well as for preventing mistakes and evil practices, surely some re-arrangement of the certificate of the cause of death could be made, so that an approximate value could be put upon the **remoter** causes of death. Thus, for example, if scarlet fever follow childbirth, the chances are that the woman will die; but were it not for childbirth, the chances are that she would recover from an attack of scarlet fever—in short, it is not usually a fatal disease. Clearly, therefore, childbirth has something to do with the cause of death; but it is returned a death from scarlet fever, with probably no mention of childbirth at all. We might add numerous examples of similar deaths from other diseases, which are influenced in this way by childbirth. But it is difficult to alter the certificate to bring this out. The want of data fit for making a just or fair comparison meets us on every side. A great source of information (a rich mine), such as the tables contained in the reports of the Registrar-General undoubtedly are, is of less value to us than it ought to be, on account of the difficulty we have in making the information available and securing the accuracy so necessary in statistical comparisons.

Authors strain language in order to arrest attention.—Before going further it may be well now to illustrate some of the expressions of the authorities named, which are liable to be mistaken or erroneously viewed, called forth no doubt in the violence of debate. Further, it is to be greatly regretted that in a discussion of this sort more care has not been observed by all the authorities, because laxity of expression, illogical conclusions, inferences, &c., are loop-holes

for the other side, and therefore they are certain to be taken advantage of in advocating the case by them—a strong case can unfortunately be made out on both sides — such is the condition of these institutions at the present time. These distinguished men so far become mere advocates of their cause, and for the moment lose sight of the great object, namely, searching for the truth, separating the wheat from the chaff.

Sir James Simpson says, to quote one of many passages:—"But must the calling of this dismal death-roll still go on unchallenged? Shall this pitiless and deliberate sacrifice of human life to conditions which are more or less preventible, be continued or arrested? Do not these terrible figures plead eloquently and clamorously for a revision and reform of our existing hospital system?"

Dr. Kennedy states that "of the patients delivered under my own care, and for whom I was responsible to God and man, ten and eight-tenths, or almost eleven, died of those in my charge in hospital, for one in private or in their own homes. This, gentlemen, is an awful consideration, and, mark me, had we then possessed our present knowledge this was all preventible, as the results of our investigation will prove." And again, "that in all deaths that have occurred in Dublin for the last seven years in parturition, out of every nine deaths seven and a half women have died who would, in all human probability, be at this moment alive had they been confined in their own homes, or in isolated cottage hospitals."

Miss Nightingale, in commenting upon Dr. M'Clintock's observations concerning what he thought to be the normal death-rate of childbed —about one in 128—observes: "On considering these figures, the first impression they convey is not that either the Registrar-General or Le Fort is wrong, but it is a very painful impression of another kind altogether. One feels disposed to ask whether it can be true that in the hands of educated accoucheurs the inevitable fate of women undergoing, not a diseased, but an entirely natural condition at home, is that one out of 128 must die; if the facts are correct, then one cannot help feeling that they present a very strong *prima facie* case of inquiry, with the view of devising a remedy for the present state of things."

Dr. Duncan remarks: "In order to make arguments from metria tell against hospitals it has been called preventible. The whole of Dr. Kennedy's 'Hospitalism' is based on this allegation. It may be true, but there is not a particle of evidence of its truth. The disease may have its ravages diminished, but it has yet to be shown that it can

be altogether prevented. The term 'preventible,' so attached to metria, is a sufficient proof of the thoroughly unpractical or sensational character of the speculations of any writer who uses it as implying that we have means of preventing its appearance. It is, in truth, as little preventible as any disease in the nosology, or any crime in the statute book. It is, possibly, preventible, but it has certainly never been prevented. It is 'preventible,' and physicians are at hand, it is common everywhere! It is 'preventible,' but it occurs in spite of the combination of every circumstance that is known or supposed to prevent it!"

Truth often found between the Extremes.—The above are good illustrations of well-meant and ably-expressed thrusts at each other—finessing—neither party meeting the other, nor trying to help each the other. The fact is there is truth in them all. The one party hits wide of the target, the other does not reach it.

"Preventible"—its Meaning as applied.—There is a sense surely in which puerperal fever, metria, zymotic disease, is preventible, even though it has never been absolutely prevented—in other words, it may be lessened. Surely he would be a bold man who would affirm that small-pox is not preventible, although it has never been prevented. And this is precisely the case with metria, although we have not hitherto found a preventive means, in the same sense that vaccination can prevent small-pox. It is to this end that the various writers are aiming, but they will beat about the bush. They will, every one of them, agree that metria is largely under the influence of proper hygienic and sanitary measures, and efficient management and care. See Chapter III., where this is fully brought out.

With regard to Miss Nightingale's surprise on noticing Dr. M'Clintock's computation (see Table VIII. and also page 43) that one woman in every 128 delivered dies in childbed—he does not say of childbirth—and her commentary that there should in consequence be an official enquiry, we would remark that as yet we are only searching for the truth in regard to an unsettled question. It would appear begging the question were we to accept the statement of death-rate made by Dr. Le Fort (see pp. 19, 54), in which he mentions that only one mother in every 212 dies when delivered in their own homes, and one in 29 when delivered in hospital.

TABLE VIII.—*Showing Deaths in Childbed, classified under three heads. From Home Practice exclusively.*

Authority.	Number of Cases.	Deaths from Accidents or Labour.	Deaths from Puerperal Diseases.	Deaths from Non-Puerperal Diseases.	TOTALS.
Joseph Clarke	3 847	7	6	9	22
J. G. Crosse	1,377	1	8	5	14
John Beatty	5,616	2	9	2	13
Thomas E. Beatty	2,064	4	8	5	17
— Churchill	2,548	6	8	2	16
— Brown	—	22	6	7	35
— M'Clintock	652	0	4	2	6
Sir P. Dunn's Maternity	336	—	—	2	2
— Brunker	334	3	3	0	6
TOTALS	16,774	45	52	34	131

OPINIONS CONCERNING AGGREGATION.

Throughout this interesting enquiry there is nothing so grievous as to observe able and distinguished men turn aside from the main question at issue, with the object of lashing one another, and quibbling about words. Let us now glance at what is written concerning aggregation. In the 40th Report of the Registrar-General, just issued, there is a very interesting article introduced by Dr. Farr, which we think desirable to reintroduce here. Its importance will excuse its length.

DENSITY OR PROXIMITY OF POPULATION: ITS ADVANTAGES AND DISADVANTAGES.

(*Report of Registrar-General.*)

Dr. Chervin, in a periodical of great merit,* points out the fact that Carey, Schaeffle, and Herbert Spencer have not succeeded in applying statistics to their theory of sociology. In our social science we were more fortunate. It is true that in many branches of social science we

* Annales de Démographie Internationale, No. 5 Article.—Sociologie et Statistique, pp. 75-96.

have to forego the use of analysis; but to others analysis has been successfully applied. I propose to illustrate one of these applications.

The population is distributed over the face of the earth in town and country; and I will consider here some of the advantages and disadvantages of the two kinds of distribution. To do this we must, for mathematical purposes, use terms more precise than town and country: and density—usually of population—has been the term employed. For instance, the density of population in England (1861-70) was 367 persons to a square mile. This implies that England is divided into 58,311 square miles; and that on each square mile there are 367 persons. The density of population on every square mile is different, but taken in the aggregate this is the mean density.

We can conceive the mean population of England in 1861-71 (21,389,245) distributed over 37,319,221 acres, or one person to every 1·74 acres. Thus, imagine the population distributed in the centre of circles—or rather hexagons—of the area of 1·74 acres; then every person must be a certain number of yards from his neighbour: this distance I propose to call the proximity. The proximity of the people of England—their nearness to each other—is now (in 1876) 93 yards.

The advantage of residence in towns—of proximity of people to each other—is evident. Man is a sociable animal; and naturally in his workshop meets his fellow-man. It is, perhaps, impossible to enumerate all the ways in which men derive pleasure or benefits from frequent intercourse with each other: but it is possible to determine the sum of their gratifications by an economical test. What do they give per acre for the ground on which they live in country and town? You will find as from the country you approach the centre of the town the value of the land increases; thus it is £25, £50, £100, £200, £400, £800, £1600 per acre. Now, on what score are these additional sums demanded or given? Is it not that men derive advantages from living near to each other?

There are countervailing disadvantages to which I shall now invite your attention. The first disadvantage strikes every one that comes from the country; and is embodied in Cowper's line—

"God made the country, and man made the town."

In the country you are surrounded by fields, by trees—in hill or vale; there the breezes coming from sea, shore, or mountain have free play. The atmosphere is redolent of ozone. In the town this is wanting. Angus Smith, by chemical tests, proves the air is different. You know

that nitrogen and oxygen are everywhere nearly the same in proportion; but carbonic acid varies with the density of population, and there are exhalations—smokes—of various kinds from dead matter, as well as from living bodies. Every town has an atmosphere of its own. Nay, every street has its own peculiar atmosphere. I was going to say that every living being has its own atmosphere.

Now this atmosphere becomes in certain proportions deleterious, and I will proceed to show that as the population becomes more dense—within certain limits—this deleteriousness is expressed by the mortality. For example, if we arrange the 619 districts of England and Wales in groups according to the rates of mortality, we find that the 18 groups follow this law; the rate of mortality increases as the density of population increases. Thus at one end of the scale the deaths per 1,000 of population are 15, 16, 17; at the other end of the scale, 31, 33, and 39; the acres to a person in the corresponding districts are 12, 4, and 3; and ·01, ·05, and ·01. The intermediate rates of mortality are 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, and 29; the acres to a person are 4·0, 3·3, 2·9, 2·1, 1·1, 1·0, 0·5, 0·2, and ·02.

Now, excluding the London districts, about which there is some difficulty, we have seven groups of districts where the mortality ranges thus: 17, 19, 22, 25, 28, 32, and 39. In the same districts the numbers of persons to a square mile are—166, 186, 379, 1,718, 4,499, 12,357, and 65,823. Thus, in Liverpool, the densest and the unhealthiest district in England, there were 65,823 persons to a square mile; of whom 39 per 1,000 died annually. This series of facts may be put in a different way: the nearer people live to each other the shorter their lives are. Thus, the proximity of people in 53 districts is 147 yards, the mean duration of life is 51 years; in 345 districts the proximity is 139 yards, and the mean duration of life is 45 years; in 137 districts the proximity is 97 yards, and the mean duration of life is 40 years; in 47 districts the proximity is 46 yards, and the mean duration of life is 35 years; in 9 districts the proximity is 28 yards, and the mean duration of life is 32 years; in Manchester district the proximity is 17 yards, and the mean duration of life is 29 years; in Liverpool district the proximity is 7 yards, and the mean duration of life is 26 years.*

* It has been found that the mean duration of life of a people (by the English and other Life Tables) is nearly equivalent to the reciprocal of the death-rate *minus* one-third of the difference between the reciprocal of the death-rate and that

This is a determined law; and the duration of life being given in one set of conditions, the duration of life in another set of conditions is determined from the proximities.

We will now draw some inferences from this law: that proximity and shortness of life go together.

(1.) The question is of the highest importance to England. Every town is surrounded by circles of new houses; and at every census villages are found grown into new towns. Thus, in the last three censuses, the town population was set down at 8,990,809, 10,960,998, and 14,041,404; and to England and Wales 2,000,000 of people have probably been added since the census of 1871, the greater part of whom will be found in the towns.

Now, according to our law, this should imply an increase of mortality; and no doubt such an increase would have been observed had there not been a countervailing law in operation.

(2.) The mortality was at the annual rate per 1,000 in the last three decenniads of 22·36 in 1841-50, 22·24 in 1851-60, and 22·51 in 1861-70. In the last seven years, 1871-7, the mortality was at the rate of 21·64, or ·87 per 1,000 less than in the ten years last quoted. Thus we may hope that there is a reduced mortality in the last seven years; and that thus about 20,000 lives are saved annually.

(3.) While the population has increased, the atmosphere has become purer; and this should encourage us to persevere in our efforts in the same direction.

(4.) The law of proximity would lead us to lay down some standard, and to fix some invariable rule, that beyond a certain density no further houses should be built on the town areas. Thus, in 23 towns of the United Kingdom, there are 38 persons to an acre; and if such was the standard, where would Liverpool be with its 102 persons to an acre; where would Glasgow be with its 94 persons; Manchester with its 84 persons; Edinburgh and Plymouth with their 53 persons to an acre?

(5.) It is certain that the most effective means of reducing the mortality is to thin the dwellings in the dense parts of the towns; to abolish under Mr. Cross's Act all the rookeries, and not to rebuild them.

of the birth-rate; and the above values were determined in this way. Thus the birth-rate in the group of 53 districts was ·03022 and the death-rate ·01675; so

$$\frac{1}{\cdot 01675} - \frac{1}{3}\left(\frac{1}{\cdot 01675} - \frac{1}{\cdot 03022}\right) = 59{\cdot}7 - \frac{1}{3}(59{\cdot}7 - 33{\cdot}0) = 51.$$

(6.) Simultaneously to put a stop to much of the smoke, and to the sewage gases which are poured into the air the population breathes.

(7.) The law might enact for the future that squares and parks should be left in the area of every town, as these spaces are indispensably required for the health of the population.

(8.) And for the present time the whole of the available land should not be built over, but spaces be appropriated for parks wherever they can be procured. Miss Vernon's paper in the transactions of the Social Science Association will throw much interesting light upon this subject.

TABLE IX.—*Proximity of Population.—Five hundred and ninety-three districts of England and Wales are arranged in seven groups in the order of mortality. The districts of London are excluded.*

	Proximity of the Population (in yards).	Number of living out of which one will die annually.	Mean duration of Life.
Liverpool	7	26	26
Manchester	17	31	29
9 districts	28	36	32
47 districts	46	40	35
137 districts	97	46	40
345 districts	139	53	45
53 districts	147	60	51

TABLE X.—*Proximity of Population, &c. States of Europe,* 1876.

COUNTRY.	Proximity of the People.		Density of the Population.
	Metres.	Yards.	Persons to a square kilometre.
England and Wales	84·81	92·75	160·535
Denmark	152·45	166·72	49·683
Sweden	339·51	371·30	10·017
Austria	126·78	138·65	71·839
Hungary (1875)	154·72	169·21	48·240
Prussia	124·30	135·94	74·738
German Empire	120·29	131·55	79·793
Belgium	79·84	87·32	181·163
Netherlands	99·25	108·54	117·236
France	128·76	140·82	69·652
Spain (1870)	186·06	203·48	33·357
Italy	111·00	121·39	93·714

The Populations used for the above Table are taken from the Registrar-General's 39th Report. With the exception of Hungary and Spain they are for the year 1876 (estimated or enumerated).

The areas were obtained from the Almanach de Gotha.

Results inseparable from the Raison d'etre.—Possibly it may be concluded, after reading the above quotation, that the mere fact of a man's living in a town will shorten his life. Surely there must be some limit to an argument like this. It appears to us that too much prominence is here given to the word aggregation, and too little to the conditions associated with aggregation. We affirm aggregation may exist without its usual concomitants which combine to produce an insalubrious condition. Look at Christ's Hospital, with over 700 boys in it, and yet in the midst of the greatest aggregation in the world. We think the state of the boys there will bear comparison with those of Eton or Harrow. We believe fewer "epidemics" occur in Christ's Hospital, though the "proximity" is thus far greater than at any other school. There can be no doubt of the fact, as recorded in the article just given, that deaths increase in proportion to the density of the population, but the explanation of that fact is a totally different thing. Life depends upon certain circumstances. Health is sustained under certain salubrious conditions. These being granted in town or country, we do not imagine that the result will be different in given cases in precisely similar circumstances. But whatever encroaches upon these requisite conditions to health will tend to shorten life. Exclude the influence of overcrowding, and mere proximity, as that term is understood in the foregoing, will not explain satisfactorily the results above given in Dr. Robertson's interesting paper. To account for this we must take in **town life** as compared with **country life**. The occupations, the habits, &c., as well as the atmospheric influences, are different and unlike. Each has risks which the other has not, as well as advantages. There is truth, no doubt, in the general supposition that country life is more wholesome than town life. Statistics bring this fact out, but statistics cannot explain the reasons why this is the case. We are of opinion that it is not due to aggregation *qua* aggregation. It is well known that there are diseases peculiar to the country, to the town, to different localities, to the several trades, &c., and these cannot be separated from the cause of death in balancing a result of this kind.

Sir Jas. Simpson, accepting the fact that life is shorter in town than it is in the country, applies this principle to hospitals and private dwellings. A natural inference from this mode of reasoning would be to suppose that a house with twelve individuals in it would not be so healthy as one with half that number, granting proper cubic space, of course, to each individual in both houses. Manifestly this is carrying the matter too far. What we have to consider and define clearly is the

amount of cubic space which should be given to each person to secure and sustain a salubrious condition. No doubt it is more difficult, not impossible, to maintain a salubrious condition when there are many people living together, than when there are few. So also when any contagious disease breaks out, it is far more dangerous when there are many people exposed to it than when there are few.

The Sick require more Air than the Healthy.—It will be observed, however, that we have been merely considering laws which affect health; those which relate to disease may be different. It is reasonable to suppose that the sick are affected by influences which do not affect the healthy. To have the same number, therefore, of sick people in a given space, equal to what is required for the same number in health, would not generally approve itself to the common sense of any one. The exhalations from the sick are different, greater, and more injurious than those from the healthy; and the sick are often more susceptible. It is not difficult to perceive that the sick themselves are affected by exhalations from the diseased bodies of others around them, and that these exhalations are different in degree and kind in different sick people. A space which might be salubrious for a person in health, might be quite unfit for him when sick, and a condition might be induced having characters similar to those which occur in cases of overcrowding. It need not be wondered at, therefore, should aggregation be used in a more or less mixed sense—partly referring to density of the population, coupled with the idea that it is the cause of the mortality already noticed as proportionate to the density; partly also to the conditions associated with density of population. It is natural to suppose that more air is required in proportion as we go from rural districts to villages, from small to large towns, and from large towns to cities, on to the crowded districts of the same. But we may have more injurious and deleterious ingredients in the air of our villages than in the air of our towns. There is no more interesting public subject of enquiry than the sanitary state of our towns, our villages, and our houses, and yet one that is surrounded with obscurity and difficulty. The question of ventilation of our hospitals is a vital one in practical medicine, and yet it is not understood. Instances are not infrequent where a costly machinery is kept up, and the desired result not obtained after all.

High Death-rate considered a Test of Efficiency.—Mr. Holmes has been much blamed and severely attacked on account

of the principle enunciated in the following paragraph, which occurs in the 6th Report of the medical officer of the Privy Council. "We do not hesitate," said Mr. Holmes, "to draw from the condition of the death-rate of a hospital a very different inference from that which it is fashionable to draw. We do not infer that a high death-rate is a sign of healthiness (for this, of course, we have no warrant); but we do draw this inference, and we are satisfied of its foundation in fact, that a high death-rate indicates, as a rule, that a hospital fulfils efficiently the purposes for which it was designed, and that a low death-rate, on the other hand, indicates *(cæteris paribus)* comparative inefficiency."

High Death-rate under certain circumstances is a Test of Efficiency.—There is a sense in which a principle such as that stated in the above paragraph would be very reprehensible, but there is also a sense in which we think it might not only be applied to hospitals, but to men of distinction, fame, and world-wide reputation. In this way we excuse and explain the high death-rate of the two years of Sir James Simpson's practice, so often recorded by those who defend our present hospital system (see page 72). Mr. Holmes is blamed by those who have arranged themselves as the enemies of our present hospital system, as sanctioning and countenancing a high death-rate, but we do not think that he is so inhuman as to wish for, or even sanction, the death of a number of people if such could be avoided, for the sake of giving a character of efficiency to a hospital. There is a limited sense in which we affirm the principle is just and natural. Much will depend upon the objects for which the hospital was instituted. We can conceive a hospital being instituted for the reception only of critical operative cases. In this case we should expect, under average skill and ability, that with a high death-rate a larger number of critical cases had been received and operated upon. We cannot help thinking, although there is truth in the principle embraced in the paragraph, it is unfortunate in its mode of expression, and we would have preferred that the words "as a rule" had been omitted altogether. So much we were bound to affirm, because the principle enunciated applies to a certain class of cases in maternity hospitals as well as medical and surgical hospitals. Yet this principle of Mr. Holmes has been seized upon as containing some dreadful and fiendish doctrine.

We shall close this chapter with a notice upon **Hospitalism.** What are we to understand by this term? Our valued instructors speak of it, and in an enquiry like the present it is requisite to a fair understanding

that we should at least *attempt* to explain what is meant by the term, if we can do no more. There is a great deal of mysticism about the word, and which, by the very name, casts a stigma upon the most valuable institutions on the face of the earth, and prematurely so. Do we find our authors venture to define it? There is no attempt at this, and as long as no common agreement can be arrived at as to what it is, so long shall it bear a sensational odour unworthy of the subject, and transient in character—we shall be fighting as those who beat the air. But sometimes "epithets stick." The only reference we can find to it by Sir James Simpson is apologetic, as "influences that seem at present to set utterly at defiance all the proudest advances of practical medicine." Dr. Kennedy, only in his dedicatory note, says: "The purport of the following pages is to prevent the holocaust which is unconsciously offered to a spirit and an interest known as 'Hospitalism.'"

These are the only references we can find directly bearing on the subject. It is evident these "influences," "the spirit," the "interest," alluded to by these esteemed authors, point to an evil agent. This arises, we think, from the belief that there is something of a contagious nature hovering about the wards of an hospital. We are of opinion that this basis is rather too limited. If the word is to be used at all (and it seems to us a very expressive word), it ought to have a much wider signification; it ought, in our opinion, to express the sum total of the differentiation between home and hospital; and must necessarily involve qualities, some good and others bad. It is evident that a different class of patients will be affected in a different way from another class on going from home into hospital. The causes of this difference will be found on the one hand in the patients, and on the other in the hospital. In the former, ideation, feelings, physical conditions of body or disease, must be taken into account in reckoning upon the chances of being injured by entering the hospital. It is not difficult to perceive that in a large class the feelings and fears are excited upon the mere thought of requiring to go to what we may designate a "sick house." This is a natural enough thing, however unnecessary it may be in a certain number of cases. We come, therefore, to the conclusion that one of the first effects on being told of the necessity to go into an hospital is depression; the natural result of depression is diminution of that mighty giant, the best ally of the human frame—hope. When the patient remains at home, matters affecting the state of health break more gently upon the intellectual faculties—the person is surrounded by family ties. There is no sudden shock to the feelings—hope is sustained

to the last by a variety of ties in a certain class. We think, therefore, that a life which is ebbing away like a flickering flame will, *cæteris paribus*, come to a speedier end under certain circumstances when life's aspirations are rent by entering a hospital.

On the other hand, the latter (hospital) holds out the greatest inducements in its regime, in its regularity, in its regimen, in its skill, in its "transcendental disinfecting" cleanliness, its ventilation, and the like, all which are incomparably superior to the homes of the poor; but what should be attempted in hospital is certainly to minimise the chances of disease being communicated from one to another. This can be done by separation of the patients, by a greater supply of purer air, by kindness, by gentleness of the nurses, by less officiousness and meddlesomeness, by inducing trust and confidence, by every way or means tending to beget and inspire hope, by carrying into effect the advances of practical medicine. If the results of hospitals, both here and abroad, be compared now with what they were ten or fifteen years ago, a vast difference must be detected. The antiseptic system gave an impetus to the greatest known specific—care, by which great saving of life and benefit to mankind must be the result (see page 76).

The following extract will illustrate the important part *hope* sometimes exercises in sickness.

"A lady sent hurriedly for a surgeon; she was very ill and thought about to die; had intense headache, restlessness, vomiting; the vessels in her brain were constricted by fear. The surgeon gave her a tablespoonful of water. This stopped the sickness, cured the headache, and sent her to sleep. Is that a mystery? The interpretation of it is written on every woman's cheek—the *hope* relaxed the vessels. All emotions produce a specific effect on the capillaries. All exciting and most pleasurable emotions relax them (blushing); all depressing emotions contract them, as when a man turns pale with fear. The same effect that takes place on the surface of the body takes place within.

"Loss of blood will cause headache, so will depressing emotions. I presume the same physical state exists in both, viz., a contracted state of blood-vessels in the brain. What is the cure? To relax them; produce a cheerful emotion." (The *British Medical Journal*.)

CHAPTER II.

THE MORTALITY OF CHILDBED.

HAVING endeavoured to clear up in the former chapter some preliminary considerations regarding statistics, the phraseology in the writings of different authors, and the like, about which it behoved us to come to some common understanding, we are free now to advance to the most important part of the subject—the mortality of childbed—and invite the reader to study fact by fact from an impartial and unbiassed point of view.

There can be no doubt that the mortality attending childbirth is one of the most definite and precise tests we can have of judging of the safest place where parturition can take place. The cause of death, by Act of Parliament, must be registered, and its issues are severely felt by all concerned. The information, therefore, is probably the most accurate available to us. It is not the only test (except as regards risk to life), as we shall afterwards see, that ought to be taken into account in discussing such a question as the value of lying-in hospitals.

Normal Mortality.—The first step that we ought to ascertain in the enquiry is, what is the normal mortality of lying-in women. This is a more difficult question than would at first appear, and can only, at the most, be attained approximately. Notwithstanding the great progress that has been made in the last thirty years, with regard to registration, it is not nearly at present as exact for this purpose as we could wish. Besides, there is the difficulty always present, and a greater barrier by far than any fault in the system of our registration, viz., the erroneous judgment, carelessness, and interested motives of medical practitioners and the public also, whereby the true cause of death is *sometimes* not returned. Of course we refer here merely to exceptional cases.

Deaths of Childbirth and Deaths in Childbed.—In trying to get at the normal mortality let us direct our attention, in the first place, to Table XII. (see page 45). From this you will see that about one mother in 200 dies from childbirth. Now from the directions of registration of the cause of death (see page 11 and Table VII.), it is clear that, in order to get the deaths in childbed, we may fairly consider that a quantity

varying from one-fourth to one-sixth more ought to be added to the deaths recorded as of childbirth (see p. 20); in other words, this will bring the death-rate from one in 200 to one in about 163 in childbed; but this is not all, although it is, perhaps, as far as we can bring the figures to at present. Still there is a tolerably well-marked and more or less strongly founded impression that many deaths are not returned in connection with childbearing which ought to be so returned (see pages 22-25).

Non-puerperal Deaths.—In order, however, to make the information in the reports of the Registrar-General available and as useful as possible, we have made this Table (XI.), to show the propor-

TABLE XI.—*Deaths of Women in England referred to Childbed during the only fourteen years of which there is a record of Non-puerperal Deaths.*

Years.	Registered Births of Children Born Alive.	Mortality from			Total Deaths in Childbed.	Total Death-rate.
		Metria.	Accidents of Childbirth.	Non-puerperal Deaths within 4 weeks of Childbirth.		
1864	740,275	1,484	2,532	460	4,476	1 in 165
1865	748,069	1,333	2,490	490	4,313	,, 173
1866	753,870	1,197	2,485	450	4,132	,, 162
1867	768,349	1,066	2,346	521	3,933	,, 195
1868	786,858	1,196	2,307	671	4,174	,, 186
1869	773,381	1,181	2,102	786	4,069	,, 190
1870	792,787	1,492	2,383	719	4,594	,, 172
1871	797,428	1,464	2,471	836	4,771	,, 167
1872	825,907	1,400	2,403	759	4,562	,, 181
1873	829,778	1,740	2,375	691	4,806	,, 172
1874	854,956	3,108	2,819	881	6,808	,, 125
1875	850,607	2,504	2,560	1,201	6,265	,, 135
1876	887,968	1,746	2,396	1,034	5,176	,, 171
1877	888,200	1,444	1,999	1,270	4,713	,, 188
	11,298,433	22,355	33,668	10,769	66,792	1 in 169

tion of deaths occurring during the four weeks after childbirth, to obtain the deaths in childbed. From this table it will be observed that about one-sixth of the deaths are referred to deaths from non-puerperal causes in childbed. It is probable, however, that as time passes this rate may increase. It is only fourteen years ago since this heading of registration was commenced, and on looking at the column it is evident

that sufficient attention has not been paid to the subject. Many deaths have taken place within the four weeks which have not been so recorded at all. The limits of death-rate are thus 1 in 125 and 1 in 195.

A private Search in the Public Records would be the most conclusive evidence of Death-rate.—It is impossible to obtain, at present, the normal death-rate *in* childbed more accurately than we have indicated, unless a private search were made, and this would involve an enormous amount of labour, which, no doubt, would well repay anyone who has the time, ability, and willingness to engage in it. Dr. Matthews Duncan conducted a search of this kind in 1855 in regard to Edinburgh and Glasgow. He found the death-rate to be one in 107, including six weeks after delivery. He has not given the details of the steps of his search. And in his discussion on the "Mortality of Childbed," Chap. I. (a most admirable chapter, by the way), he concludes with this generalization, "not fewer than one in every 120 women delivered at or near full time die within four weeks of childbed." He, perhaps, may have been guided to this latter death-rate by the result of the famous discussion upon zymotic diseases in Dublin in 1869, and by the aid of Table VIII. (page 31), as well as by a method of calculation adopted by Dr. M'Clintock, by which the rate of mortality was estimated at one in 128. (See Dub. Quar. Jour. of Med. Sci., August, 1869, p. 267.)

Probable Death-rate.—This death-rate of one in 120 by Dr. Duncan, or one in 128 by Dr. M'Clintock, is simply, however, an inference, which we think is, upon the whole, near the truth. It cannot be considered proved, yet the probability is that it is about the mean death-rate, seeing that men of such standing are convinced that it is so. No doubt many practitioners may be so fortunate as to experience greater success than this; these may, therefore, refuse to believe in this rate; others, again, who have not experienced the same good fortune think this rate still quite high enough, and consider that those who have given details of their private practice may have (through their ability or good luck) saved some of their patients, and if such be the death-rate of eminent men, how can they, they argue, expect it to be so favourable in their own cases? For ourselves, we could believe the rate to be anywhere between 120 and 160. We need not be surprised at it being about the rate of one in 120 if we recollect that natural labour is more or less hazardous; and this being so, what can we say of unnatural labours (*i.e.*, 1 in every 36 labours), a class which does not obey the well-known laws which regulate parturition? The class of deaths which

comes under the head of "accidents of childbirth," seems to us to have occupied too little of this enquiry; it appears to have been forgotten when dealing with the mortality of childbed. While, again, we would not be incredulous, should it be shown that a death-rate approaching one in 160 may be the more correct, considering that there are many practitioners and medical men who have had a mortality as small and smaller than that. Evidently Dr. Duncan is not quite satisfied with the death-rate of one in 107, resulting from his private search in the registration records of Edinburgh and Glasgow, seeing he lowers the rate from that number to 1 in 120, although the former embraced six weeks after delivery, the latter only four.

It may be noted here that Table VIII. (page 31), showing what has occurred in the private practices of eminent men, is a very extraordinary, and we do not hesitate to say in advance, an unsatisfactory one, albeit the data may be reliable enough. It is enough for our present purpose to notify that the death-rate by Le Fort, by our own Registrar-General, by Dr. M'Clintock, and by Dr. Duncan, are all at variance—there is no unanimity between these undoubted authorities.

Normal Mortality of different Countries.—In passing it may be well here to remark, respecting the mortality occurring among lying-in women of different countries, that the only data upon which we can lay our hands is that given to us by Le Fort (see Table V., page 19). We have already pointed out the unreliable character of the data in this table, and at present we have no guide as to the normal mortality of this or any other country. In all probability other countries of Europe have a higher death-rate than we have.

Opinion and Weight of Evidence ought to be respected, particularly in medical matters.—Statements regarding the death-rate of childbed, if against the received opinions of the profession, ought not to be put forth nor accepted until the data affording the conclusions drawn are thoroughly examined, weighed, and approved.

In order to get the full benefit of the result derivable from statistics, it is necessary that there should be a common understanding regarding the soundness of the sources. Le Fort has built up statistics on insufficient data, and the result is, we have seen, doubtful. It is not so with the Registrar-General. There can be little or no doubt that the number of deaths recorded as due to metria and accidents have actually occurred; and, inasmuch as probably a quarter more deaths occur in England within four weeks after delivery, it is fair to suppose that child-

birth has generally, at least, been a secondary cause of death. This, as we shall see from Table XI., gives us a rate of mortality in childbed (*i.e.*, reckoning the total deaths) of one in 169, or as estimated 1 in 163

TABLE XII.—*Deaths in England of Women referred to Childbirth in each of the thirty-one years* 1847-77.

Years.	Registered Births of Children Born Alive.	Number of Deaths from			Deaths of Mothers to 1,000 Children Born Alive.
		Metria and Childbirth.	Metria.	Accidents of Childbirth.	
1847	539,965	3,226	784	2,442	6·0
1848	563,059	3,445	1,365	2,080	6·1
1849	578,159	3,339	1,165	2,174	5·8
1850	593,422	3,252	1,113	2,139	5·5
1851	615,865	3,290	1,009	2,281	5·3
1852	624,012	3,247	972	2,275	5·2
1853	612,391	3,863	795	2,268	5·0
1854	634,405	3,009	954	2,055	4·7
1855	635,043	2,979	1,079	1,900	4·7
1856	657,453	2,888	1,067	1,821	4·4
1857	663,071	2,787	836	1,951	4·2
1858	655,481	3,131	1,068	2,063	4·8
1859	689,881	3,496	1,238	2,258	5·1
1860	684,048	3,173	987	2,186	4·6
1861	696,406	2,995	886	2,109	4·3
1862	712,684	3,077	940	2,137	4·3
1863	727,417	3,588	1,155	2,433	4·9
1864	740,275	4,016	1,484	2,532	5·4
1865	748,069	3,823	1,333	2,490	5·1
1866	753,870	3,682	1,197	2,485	4·9
1867	768,349	3,412	1,066	2,346	4·4
1868	786,858	3,503	1,196	2,307	4·5
1869	773,381	3,283	1,181	2,102	4·2
1870	792,787	3,875	1,492	2,383	4·9
1871	797,428	3,935	1,464	2,471	4·9
1872	825,907	3,803	1,400	2,403	4·6
1873	829,778	4,115	1,740	2,375	5·0
1874	854,956	5,927	3,108	2,819	6·9
1875	850,607	5,065	2,505	2,560	6·0
1876	887,968	4,142	1,746	2,396	4·9
1877	888,200	3,343	1,444	1,999	3·88
	22,181,195	110,008	39,768	70,240	5·0

(page 20). This computation is faulty, but it may be considered that it is on the pardonable side, because, although all these deaths did not occur directly from childbirth (see page 26), yet, no doubt, it influenced the result materially in many cases, and many more deaths occurred of

which no connection with childbirth was given, and therefore not mentioned at all in these tables. It may, however, be noted that there are two factors not taken into account—first, deaths not correctly returned, number unknown; second, deaths returned without any given cause, of which there are in the aggregate annually in England between four and five thousand. The half of the latter number is put down to sudden death, cause unascertained; the other half is not specified. It is not easy to attach any value to these, and we refrain from doing so. Still we cannot help protesting, in the strongest possible manner, against the way that Le Fort collects his data. It is, *e.g.*, universally acknowledged that, by the Registrar-General's Report, the death-rate is about one in 200. Le Fort, not content with this, takes a number of deliveries from out-door practice known to have a low death-rate, mixes these deliveries up with a period of unusually low death-rate for London, adds them to some Continental data having an unusually high death-rate (according to the British standard), and then from this medley strikes a mean. This method is simply ridiculous, but the result has been received because it is near what the Registrar-General's tables fix the death-rate of childbirth at. We question if Le Fort's data are similarly received on the Continent.

The Registrar's Classification of Death.—The next step in our enquiry naturally will consist in an exposition, in a comparative point of view, of the materials of that mortality. Nearly twenty years ago a statement was made, as we have seen, by Le Fort, which startled the medical world, to the effect that one death in 29 occurred in hospital practice, as compared with one in 212 in home practice. On looking at Table XII. (page 45), from the report of the Registrar-General, we have the deaths arranged under two heads, namely, (*a*) Metria and (*b*) Accidents of Childbirth; but we have (*c*) deaths from non-puerperal causes, not noticed in Table XII. Much depends on the classification made. If there be not unanimity about what deaths are to be placed under the certain heads—metria, accidents, and non-puerperal—there can be no ground for comparison. As British hospitals are more get-at-able, our data will be gathered chiefly from them.

(a). "**Accidents of Childbirth**" consists of convulsions, hæmorrhage, rupture of uterus, syncope and exhaustion, premature labour, adherent placenta, and the like.

(b). **Metria—what is it?**—Metria, or puerperal fever, which we shall see is not so easily defined, consists of one so-called disease. Dr. Ken-

nedy, who justly claims to have a special knowledge of this class of diseases, both from his being master of one of the greatest lying-in hospitals in the world, and also from his vast experience and ability, includes the following as modifications of the same disease:—Puerperal Fever, Metritis, Peritonitis, Pleuritis, Phlebitis, Arthritis, Pyæmia, Purpuric or Cerebro-spinal Metria, Traumatic Metria, Erysipelas, and Hospital Gangrene. Dr. Duncan affirms: "Although this appears to me to be the opposite of defining and settling, I shall not here enter upon any detailed objection to it, because it would involve a discussion not essential to my present purpose;" and again he says: "Puerperal Fever, or Metria, is to me a hotbed of insufficient and false hypotheses. I do not believe there is such a single disease: the term includes a variety of diseases, and a variety of modifications, or terminations of diseases; it is familiarly described as zymotic disease; it is described universally as occurring in epidemic, not merely as an endemic. I feel certain, and believe I can prove, that an epidemic of Puerperal Fever never occurred; that no accepted definition of an epidemic can be made to include metria."

Dr. A. Farre defined it as "a continued fever, communicable by contagion, occurring in women after childbirth, and often associated with extensive local lesions, especially of the uterine system." Dr. Stokes, of Dublin, remarks: "When we speak of puerperal fever we must avoid all hair-splitting distinctions which exhibit a want of the *mens medica*. We must not talk of strong lines of distinction between puerperal fever and uterine phlebitis, and diffuse peritonitis, and so on, and again, between primary and secondary local disease. Between local and essential affections there are plenty of distinctions laid down in books, but the physician who looks nature in the face knows what value to set upon them."

Prof. Schroeder places under the term Puerperal Fever "all those diseases of puerperal women which are caused by the absorption of septic matter—that is, organic substances in the process of decomposition."

Dr. Heller, of Lucerne, informs us that now, by law, "all sickness or febrile action following inflammation of the reproductive organs after childbirth is registered as puerperal fever."

Want of Definition a Source of Error.—From what has just been said by some of the ablest writers upon the subject of metria, it is not difficult to understand that different sets of practitioners may ascribe the same death to different causes. See following table (XIII.).

TABLE XIII.—*Mortality in Glasgow Lying-in Hospital*, 1871.

Deliveries.	Deaths of Mothers.				Total.	Death-rate, 1 in	Children.							
	Metro-Peritonitis.	Exhaustion.	Phthisis.	Puerperal Fever.			Born alive at full time.		Still-born at full time.		Born prematurely (alive).		Born prematurely (dead).	
							Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females
313	2	2	1	1	6	52	153	125	7	9	4	4	9	6

Now, if the physicians of the second city in the empire—having special facilities for ascertaining the differential diagnosis of the disease—classify and certify the deaths as above, it must not be supposed that there was only one death from puerperal fever in 313. By comparing this table with Table XXI. (page 62) it will be seen that there would be considerable difference in the death-rate in the two tables from this cause, according as we give a broad or a narrow definition to the term metria. This may also be illustrated by referring to Table XVII.

(c). **Reasons for not omitting Non-puerperal Deaths.**—We now come to non-puerperal causes of death. It is manifestly impossible in our reckoning to exclude any one of these three classes in our present enquiry. Childbirth has exclusively to be associated with metria, although constitutional conditions and other circumstances may affect the fatal issue. Childbirth must be accountable for the "accidents," more or less exclusively—the same in individual cases, whether in hospital or out of it. In one sense there ought to be more deaths from this cause out of hospital than in it. Skill ought to save some in the hospital; while, again, many come to the hospital because of deformities, &c., all deaths from which come under the head of "accidents." So that no doubt more die from this cause in the hospital relatively than out of it. But with "non-puerperal" diseases childbirth may only have a secondary effect, or none at all. For comparison, however, it is better to include the latter, and for this purpose the deaths are called in childbed. A very limited number die after leaving the hospital, but again many non-puerperal deaths are not returned. We are of opinion that non-puerperal deaths would amount to about one-fourth the deaths from metria and accidents of childbirth (pp. 20, 42). It is not pretended to say what the deaths of childbirth are.

Excessive Mortality ascribed to Metria.—It was previously understood that the rate of mortality was higher in hospitals than in home practice from more or less obvious and acceptable causes. Le Fort affirmed that puerperal fever was the principal cause of death after delivery. Dr. Barnes—a very able authority—stated that it was "the most destructive of all causes to puerperal women." Dr. Kennedy—in whose mind this question and the views he advocated had been simmering for years—stated, "as a motive for our investigation, that growing knowledge had led to the conviction—a conviction every day strengthening—that zymotic disease is, in a great measure, preventible." Dr. Duncan—and we shall quote no other—states that metria is the chief cause of variations of mortality in hospital or private practice. It is to this one disease that our attention is to be chiefly directed. Metria is altogether a curious disease—in its diagnosis, its habits, capriciousness, its symptoms, and its consisting apparently of different types. The fact is, we seem to be somewhat at sea yet in respect to this obscure malady. There can be no doubt that the public think the profession can and ought to abate or stop it. Hence, when it occurs, odium is attached to those whose steps it follows. It is a terrible thing, indeed blamable, when the death of a healthy woman, in the prime of life, is directly traced to this disease being communicated through carelessness, negligence, or ignorance.

Difficulty in defining a Disease does not prove that the Disease does not exist.—We have seen the great difficulty respecting a common understanding being come to as to what metria is. The ablest men fail in agreeing to any common definition of the disease. While it has, here and elsewhere, been loosely applied to designate all febrile diseases in the puerperal state tending to a fatal issue, and where no other definite cause could be assigned, yet there can be no doubt that there is a disease attacking puerperal women having symptoms such as obstetricians recognise as puerperal fever, though varied in its type. Any definition of metria may fail to signify what it is. This, however, is not singular. There is no more fruitful field of discussion than that of defining what lunacy is; every definition of which that has been yet proposed has been shown to be faulty or to come short, yet it would be vain to deny that there is not a diseased condition known as lunacy or unsoundness of mind. We have also seen that metria, in the opinion of the highest authorities, is the disease which causes the greatest fluctuations in the death-rate of childbed. In a practical enquiry of this sort it is, therefore, necessary for us now to classify

THE CAUSES OF PUERPERAL FEVER OR METRIA.

TABLE XIV.—*Showing Causes of Puerperal Fever.*

- Causes of Puerperal Fever (Metria)
 - Poison affecting Blood
 - 1. Originating *de novo* in and by the lying-in woman herself, *i.e.*, auto-genetic.
 - *a.* Predisposing causes (see p. 7).
 - *b.* Decomposition, and absorption of animal matter
 - *c.* Miasm.
 - *d.* Traumatic.
 - *e.* Sporadic.
 - 2. Communicated to the lying-in woman by others, *i.e.*, hetro-genetic.
 - *a.* Contagion
 - Doctor.
 - Nurse.
 - Friends.
 - Endemic influence.
 - Traumatic.
 - *b.* Morbid and putrid miasm
 - *c.* Erysipelas.
 - *d.* Zymotic diseases.
 - *e.* Exanthematic fevers.
 - *f.* Atmospheric conditions.
 - *g.* Epidemic influence.
 - *h.* Sporadic.
 - *i.* Hospitalism.

Dr. West states: "There is not one single solitary cause to which we can refer puerperal fever; that it occurs now from one cause, now from another." And Dr. Priestley seems to agree in this, for he adds: "it may be asserted that there is not one puerperal fever, but several, arising from a diversity of causes."

By referring to page 7, it will be observed that there are various conditions of the body which exert an influence or predisposition to render a lying-in woman liable to become affected with metria.

In support of this, many passages bearing directly upon the point might be quoted from the writings of eminent men, but we think it better to refer the reader to the opinions mentioned in Chapter III.

Materials from which our Statistical Tables are derived.—The sources from which we can get information concerning the prevalence of metria claim our earnest consideration. This leads us to examine carefully the published data found in the authorities already referred to. They are as follows—First, information derived from the reports of the Registrar-General; second, records of hospitals, civil and military; third, records of unions or workhouses; fourth, records of home practice, as derived from out-door medical relief; fifth, private practice. In dealing with this subject it should never be forgotten that the death-rate alone cannot settle the question whether hospitals are banes, bless-

ings, or pest houses. A review of data from the sources above referred to is most valuable, as tending to show in what directions we should turn with a view to lessening the metria mortality.

I.—INFORMATION RESPECTING METRIA OBTAINED FROM THE REPORTS OF THE REGISTRAR-GENERAL.

Unquestionably, this source is one of the most valuable that we possess, because it tacitly expresses the collective voice of the profession. It is therefore powerful, and has a value altogether of its own, above all other records. The nation pays annually a considerable sum for the purpose of registering the causes of death, and any one looking through these records for the past thirty years cannot help being struck with the great improvements which have been effected. There is an enormous fund of information contained in these reports, and if one had leisure and ability much more might be obtained by searching privately among the records not given in these reports, which also contain a vast amount of information. For the reasons already given (page 12), it is clear that the death-rate as mentioned by the Registrar-General is faulty, that some further allowance must also be made, and that we ought to include the non-puerperal deaths with the mortality of childbirth to obtain mortality in childbed. This mode alone can make the information comparable. By carefully examining Tables XIII., XVII., and XXI., we can fancy that it is not such an easy matter to precisely obtain the deaths from metria. Not only is there the difficulty of the doctor returning the death as due to a certain form of inflammation, as in the tables referred to (see in conjunction with this Dr. Kennedy's definition, page 47); but again, the clerk at the Registry has the whole difficulty to decide under what head he is to mark these deaths. Notwithstanding these errors, we think the disease is tolerably well marked and known, and usually certified as such. Though not perfect, yet the information so derived is approximate enough, and may be useful as a basis of comparison.

What, then, is the use of the tables of the Registrar-General as thus made out? So far as we can perceive, the death-rate in these tables points to what the death-rate from any special disease **ought** to be, rather than what the death-rate **actually** is. It is the collective voice of the profession intimating what the mortality ought to be. We have seen that the profession does not **always** (from reasons already stated, page 22) correctly certify, and therefore statistics cannot tell what the death-rate is. We have already seen by Table XI. what the

deaths in childbed are (1 in 169) for 14 years; from metria about 1 in every 500, and from all other causes, exclusive of metria deaths, 1 in 254.

II.—RECORDS OF HOSPITALS—CIVIL AND MILITARY.

The information obtained from this source, in so far as mortality alone is concerned, will be universally acknowledged to be the most reliable of all; and for this reason, that physicians, surgeons, and obstetricians at an hospital are well-up in their respective departments, and can differentiate cases far more minutely, and can ascertain precisely the cause of death in specially obscure cases. Those acting under the staff of an hospital, having no ulterior motive to gain, register the cause of death with the same accuracy as their teachers. Now, it would be absurd to suppose that men—any given set of medical men—busied in such a varied manner as practitioners are, could do this with the same accuracy. It is simply impossible. A practitioner gets rusty; the teacher is always alert, well-up, and just in the directions, the former pupil becomes *passé*. But in certifying causes of death such as affect our present enquiry, this is less felt than in any other illness. It will be observed that we are not speaking of more than the simple record of death; not of the records of cured, relieved, dismissed in *statu quo*, aggravated, &c. We do not touch upon the question of stamina of the patients, and the circumstances of the cases generally. We all have and keep our own opinion upon these points, and it is unlikely that we can ever reckon the differences or similarity between sets of patients; upon this we cannot become unanimous.

To obtain a Mean we must take the result from the aggregate.—In striking **general averages** we are at liberty to take the data of all hospitals, and for as long a period as attainable under certain conditions (see page 13). We are, however, not at liberty to select for this purpose hospitals, or tabulate selected data of these hospitals. Of course in dealing with a subject where epochs and so on are compared, we have the right then, under these special circumstances being stated, to give data fairly to prove or disprove an assumed position. Much mischief has arisen from disregard to this simple axiom. It invalidates useful statistics, and, what is worse, renders them suspicious. To illustrate what has just been stated, it may be well to refer the reader to Table XV. It is somewhat noteworthy to find Miss Nightingale protesting "against massing hospitals alike only in one circumstance

TABLE XV.—*Mortality per Thousand from all Causes after Delivery. (Abstracted from Official Reports and Returns, after Miss Nightingale.)*

Place.	Deliveries.	Deaths.	Deaths per thousand deliveries.
Twelve Parisian Hospitals { 1861	7,309	—	95·1
1862	7,027	—	69·7
1863	7,289	—	70·3
King's College Hospital, 1862–7	780	26	33·3
Rotunda Hospital, Dublin, 1857–61	6,521	169	26·0
Queen Charlotte's Lying-in Institution, 1858–68	9,626	244	25·3
British Lying-in Institution, 11 years, 1858–68	1,741	25	14·3
City of London Lying-in Hospital, 1859–68	4,966	54	10·9
Eight Military Lying-in Hospitals, 2 to 12 years	5,575	50	8·8
Liverpool Workhouse Lying-in Wards, 13 years, 1858–70	6,396	58	9·06
Forty London Workhouse Infirmaries, 5 years	11,870	93	7·8
One Military Lying-in Hospital (a wooden hut), 1865–70	252	0	0
All England, 1867	768,349	3,933	5·1

together for the sake of taking their statistics in bulk in this way, excepting for the most general purposes, which is, indeed, all that Dr. Le Fort has in view here, especially as our own lying-in institutions in these islands, which come out best singly, appear confounded amongst the greatest sinners, if the materials of which the tables are composed are of a uniform and similar character; if not, they ought to be rejected altogether."

We think that there is no other way of striking an average than massing hospitals together, but the great fault in Le Fort's table is, that he does not seem to have tabulated the data fairly. As pertaining to this question, we must again refer to the table from Miss Nightingale's excellent work. In it you will see the Rotunda Hospital noted at a death-rate of 26 per 1000, that is, one in 38, whereas it ought to be nearly half that death-rate, namely, 13·7 per 1000, or one in 73 (see page 60). But what then may be considered the death-rate of lying-in institutions? This will vary much.

Le Fort's table on the next page shows the data of a number of lying-in institutions, and had more care been exercised in keeping to the suggestions already given, some useful generalization might be obtained from the comparative results in hospital practice. We think that those hospitals, with the statistics given of four years and under, ought to have been excluded, unless it can be shown that they present a fair

TABLE XVI.—*Table showing the Death-rate from all Causes amongst Women Delivered in Lying-in Hospitals. (Abstracted from Dr. Le Fort's 'Des Maternités,' after Miss Nightingale.)*

Maternity Hospitals.	No. of Years of Observation.	Deliveries.	Deaths.	Deaths per Thousand.
Vienna Maternité	50	103,731	2,811	25
Students' Clinique	30	104,492	5,560	53
Midwives ,,	30	88,083	3,064	34
Académie Joséphine	1	277	24	86
Prague Maternité	15	41,477	1,383	33
Munich ,,	4	4,064	86	21
Göttingen ,,	8	1,029	32	32
Gratz ,,	3	3,089	97	31
Greifswald Clinique	4	316	18	56
Bremen Hospital	6	139	10	71
Halle Clinique	1	102	3	29
Berlin Clinique de l'Université	1	401	11	27
Frankfort-on-Main Maternité	7	1,213	13	10
Leipzig Ancienne ,,	46	5,137	89	17
Nouvelle ,,	3	594	20	33
Pesth Clinique	5	2,571	86	33
Moscow Maternité de la Maison des Enfans Trouvés	11	11,556	230	19
Ditto	10	16,721	436	26
Ditto	10	27,759	776	28
St. Petersburg Clinique de la Faculté	6	376	34	90
Hospital Kalinkin	15	1,288	20	15
Institut des Sages Femmes	15	8,036	238	29
Maternité des Enfans Trouvés	15	16,011	825	51
Dublin Maternité	58	84,390	875	10
Ditto	7	21,867	309	14
Ditto	5	12,885	198	15
Ditto	7	16,391	158	9
Ditto	7	13,167	224	17
Ditto	7	13,699	179	13
Ditto	7	13,748	163	11
London Lying-in Hospital	28	5,883	172	29
Edinburgh Hospital	1	277	3	10
Stuttgart ,,	1	424	3	7
Zurich Maternité	1	200	20	100
Stockholm ,,	1	650	37	56
Göttenburg ,,	1	223	18	80
Lund ,,	1	33	2	60
Freiburg en Breisgau	3	281	10	35
Jéna Clinique	4	308	21	67
Dresden Maternité	51	15,356	373	27
Paris Maternité	8	15,307	610	39
Ditto	10	23,484	1,114	47
Ditto	10	25,895	1,293	49
Ditto	10	26,538	1,125	42
Ditto	10	34,776	1,458	41

TABLE XVI.—*Continued.*

Maternity Hospitals.	No. of Years of Observation.	Deliveries.	Deaths.	Deaths per Thousand.
Paris Maternité	10	25,094	1,298	51
Ditto	5	9,886	1,226	124
Total for ditto	63	160,704	8,124	56
Paris Clinique de la Faculté	5	1,654	117	70
Ditto	10	9,079	359	39
Ditto	10	9,462	379	40
Ditto	5	4,100	288	70
Total for ditto	30	24,295	1,143	47
Paris, St. Antoine	9	28	5	178
Ditto	10	32	15	468
Ditto	10	129	20	155
Ditto	10	788	65	82
Ditto	10	2,359	134	56
Ditto	5	1,868	110	58
Total for ditto	54	5,204	349	67
Paris, Hôtel Dieu	8	833	36	43
Ditto	10	658	34	51
Ditto	10	1,757	81	46
Ditto	10	2,338	17	7
Ditto	10	3,012	106	35
Ditto	10	11,744	325	27
Ditto	5	4,972	232	46
Total for ditto	63	25,314	831	32
Paris, St. Louis	3	4	0	0
Ditto	10	128	2	15
Ditto	10	1,282	51	39
Ditto	10	2,832	173	61
Ditto	10	2,736	102	37
Ditto	10	7,244	200	27
Ditto	5	3,812	252	66
Total for ditto	58	19,038	780	40
Paris, La Charité	3	648	84	126
Lyons ,,	4	3,325	91	17
Hôtel Dieu	4	2,016	33	16
Rouen Hôpital Général	4	1,275	9	7
Bordeaux Maternité	4	714	30	42
Lille	4	683	25	35
Rheims	4	646	15	23
Strasburg	4	556	78	140
Grenoble	4	554	20	36
Bordeaux, St. André	4	547	36	65
St. Etienne	4	515	8	15
Toulouse	4	493	9	18
Bourg	4	461	0	0
Troyes	4	460	2	4
Marseilles	4	444	16	36
Châteauroux	4	423	20	47
Amiens	4	396	5	12
Colmar	4	396	26	65
Nantes	4	340	17	50
Nancy	4	320	9	28
Orleans	4	301	3	9
TOTAL FOR ALL HOSPITALS	—	888,312	30,394	34

TABLE XVII.—*Midwifery Statistics, King's College Hospital.*

Year.	Total Deliveries	FATAL CASES.				Death to Labour.
		Date of Birth.	Nature of Labour.	Cause of Death.	Date of Death.	
1862	97	Nov. 6	Natural	Puerperal peritonitis	Nov. 25	
		,, 30	Twins	Phthisis and puerperal fever	Dec. 27	1 in 32·3
		Dec. 10	Natural	Puerperal peritonitis	,, 20	
1863	105	Jan. 10	Natural, child stillborn ...	Puerperal fever	Jan. 16	1 in 52·5
		Apr. 29	Natural	Puerperal fever	May 20	
1864	141	Feb. 16	Natural	Puerperal fever	Feb. 25	
		Apr. 14	Induced	Pyæmia	April 29	1 in 47
		Dec. 1	Born in caul	Hæmorrhage...	Dec. 7	
1865	163	Jan. 30	Natural	Embolism	Feb. 12	
		Feb. 8	Natural	Puerperal fever	,, 18	
		June 24	Forceps	Puerperal metritis and pelvis cellulitis	July 30	1 in 32·6
		Oct. 20	Forceps	Laceration of perinæum; puerperal fever ...	Nov. 3	
		,, 29	Natural	Puerperal fever	,, 9	
1866	150	Jan. 10	Natural	Gastro-enteritis	Jan. 20	
		Mar. 24	Natural	Retained placenta; puerperal fever	April 10	
		Oct. 8	Placenta prævia—turning	Emphysema and bronchitis	Oct. 10	1 in 30
		Nov. 10	Forceps	Peritonitis	Nov. 15	
		Dec. 4	Natural	Puerperal fever	Dec. 31	
1867	125	Jan. 10	Had erysipelas when admitted	Puerperal fever	Jan. 30	
		Feb. 7	Natural	Considerable hæmorrhage; puerperal fever ...	Feb. 22	
		,, 8	Natural	Puerperal fever	,, 22	
		Apr. 12	Turning	Puerperal fever	April 22	
		May 18	Natural	Pyæmia	May 27	1 in 13·8
		June 4	Natural	Puerperal fever	June 19	
		July 26	Natural	Puerperal fever	Aug. 11	
		Nov. 5	Twins, first dead; second by turning	Puerperal fever	Nov. 11	
		,, 8	Forceps	Laceration of vagina; puerperal fever	,, 14	
TOTAL	781	23 deaths from Puerperal Diseases, 1 from Accident of Childbirth, 3 Non-puerperal Deaths			Deaths, 27	1 in 28·9

average of other years. This we doubt. Otherwise, we think Le Fort (in order to strike a mean death-rate of what occurred in hospital practice) entitled to add good and bad hospitals together. To take the bad could not be right, and to take the good alone would be wrong.

Death-rate in General Hospitals.—But what good can be obtained towards the settlement of our enquiry by such an average? There is some useful purpose to be gained by comparing results of this kind. The low rate of mortality of some institutions will be brought out, as compared to others which have a high and unenviable death-rate. Statistical tables are essential for pointing out the superiority, safety, and hence the value of certain hospitals when compared with others. We affirm that it is impossible to value the utility of hospitals to a community by tables of death-rate, as this will depend on the purposes for which a hospital is established, and the class of patients admitted. We have elsewhere dwelt upon this

TABLE XVIII.—*Mortality among Lying-in Women at the under-mentioned Parisian Hospitals during the Years* 1861, 1862 *and* 1863.

Hospital.	Total Deliveries.	Mortality per Thousand.			Death-rate.
		Puerperal.	Non-Puerperal.	Total Deaths.	
Hôtel Dieu	2,957	35·3	9·8	45·1	= 1 in 22
La Pitié	1,474	54·0	15·6	69·6	,, ,, 14
Charité	779	94·5	28·3	122·8	,, ,, 8
St. Antoine	1,071	65·2	21·7	88·0	,, ,, 11
Necker	656	40·4	24·1	64·5	,, ,, 15½
Cochin*	148	86·0	44·5	130·5	,, ,, 7½
Beaujon	846	33·8	12·1	45·9	,, ,, 22
Lariboisière*	2,468	44·8	12·6	57·4	,, ,, 18
St. Louis	2,377	53·7	10·4	64·1	,, ,, 15
Lourcine	129	24·8	—	24·8	,, ,, 40
Cliniques	2,395	61·7	22·4	84·2	,, ,, 12
Maison d'Accouchements	6,325	97·8	10·5	108·3	,, ,, 9
Total	21,625	57·6	17·6	75·4	= 1 in 13¼

view of the matter. Lying-in institutions ought to set before themselves the best hospitals of the kind as a standard of imitation, not one from an average mortality struck from the good and bad together. We are

* As these pages were passing through the press a recent paper on this subject was brought under our notice by Mr. Reeves; it is called "Recherches sur la Mortalité des Femmes en Couches dans les Hôpitaux," by L. de Beurmann, 1879. Being limited in its application to two Parisian hospitals—

far from denying the result of Le Fort's table, that one mother died in every 29 delivered, massing all hospitals together; nay, we can prove that in London—the "centre of civilization"—a death-rate nearly approaching this has occurred, as will be seen from the accompanying Tables, XVII. and XIX.

The high death-rate of 1 in 13 (which made the average for five years 1 in 29) in King's College Hospital, which, as we all know, is a general hospital, led to the complete shutting up of the lying-in department. This is the only general hospital, so far as we know, that tried to establish a midwifery department in connection therewith in this country. Table XVIII. will show what occurred in the Paris general hospitals. We know, however, of general hospitals abroad where the midwifery department is large and successful. At Vienna, for example, there are over 1,000 beds in the general hospital set apart for midwifery patients – the mortality over the whole is only about 3 or 4 per 1,000. In one of the three divisions presided over by Dr. Gustav Braun, and in which male medical students are not allowed, there are annually about 3,500 deliveries, with only 16 deaths (or 1 in 220). We understand from a good source that the mortality is nearly as low in the two other divisions.

TABLE XIX.—*Mortality in Queen Charlotte's Lying-in Hospital, 1828 to 1868.*

Deliveries.	Deaths from Puerperal Diseases.	Deaths from Accidents in Childbirth.	Deaths from Miasmatic Diseases.	Deaths from Consumption and Chest Diseases.	Deaths from all other Diseases.	Total Deaths.
9,626	138	51	8	32	15	244

Death-rate in our Metropolitan Lying-in Hospitals.—Furthermore, we shall see from Table XIX. that our metropolitan

the Lariboisière and the Cochin—it is, of course, of only indirect value to us. It is, however, of importance in relation to Table XVIII., the data of which we have taken from Miss Nightingale's work, which data in turn seem to be well authenticated, and taken from official reports. At the same time, there is a considerable difference in the statistics given by Miss Nightingale and those given by Dr. Beurmann. Thus, in the Lariboisière for the 3 years noted, Dr. Beurmann's figures are: deliveries 2324; total deaths 95, (1 in 24·4, or 41 per 1000); puerperal deaths 83, (1 in 28, or 36 per 1000). Dr. Buermann has collected the data of the Lariboisière hospital from 1854 to 1878. The result we may specify in a general way here is—deliveries 19,801; total deaths 732, (1 in 27, or 37 per 1000); metria mortality 613, (1 in 32, or 31 per 1000). The data of the Cochin hospital are very different from those in the Table referred to. Dr. Beurmann's statistics are from 1873 to 1877 (5 years), and may be summed as follows:—deliveries 3697; total deaths 34, (only 1 in 108 or 9·2 per 1000); metria mortality 23, (1 in 160, or 6·2 per 1000). The evident conclusion is that this hospital is in a far better condition than it was in the three years 1861-3. The total number of deliveries in these three years was only 148, not 1-16 the proportion who were delivered in these five years.

lying-in hospitals have not much to boast of in view of Le Fort's assertion. We observe from this table that the death-rate in this hospital for 40 years is one in 39, and we observe from a report bearing the signatures of Drs. Watson, Acland, Sibson, Markham, and Randall, of Captain Galton, W. Corbett, T. Holmes, and Charles Hawkins, as well as of Dr. Edward Smith, that this hospital is classed as being "the chief lying-in institution in the metropolis." Hence we may assume that the mortality in the other metropolitan lying-in institutions is not much better.

Provincial Lying-in Hospitals.—To carry the comparison further, we may refer to Table XIII. (page 48) from the thirty-seventh report of the Glasgow Lying-in Hospital. Here we find a death-rate of one in every 52 delivered. It will be seen from the report that it is an exceptionally good year. "The attending physicians," so the report states, "have pleasure in stating that the hospital during the byegone year was free from disease. There was little illness among the patients, and the recoveries were generally rapid and complete. Considering the class of patients, and their condition on admission, it is a matter for congratulation that the amount of sickness and mortality has been so small."

Dublin Lying-in Hospital.—With the view of showing that, in well-regulated hospitals, Le Fort's mortality is an excessive one, we come to institutions more worthy of admiration and encouragement. Dublin has long ago obtained and kept the foremost position in this department of medicine. It will be enough to show the importance of the annexed table (XX.) if we quote the following out of many passages of Dr. Duncan's work: "The Dublin Hospital data can, without difficulty or strain, be made to yield direct and exact evidence on the influence of aggregation upon its inmates—evidence, as already said, of the highest value from the unity and other characters of delivery, from the length of the hospital's existence, and the consequent greatness of its figures." And again he says: "Taking, then, **the best data which, so far as I know, the world affords**, we find that the mortality of the Dublin Lying-in Hospital does not increase with the increased numbers of the inmates—does not rise with the aggregation. The mortality of the Dublin Lying-in Hospital is neither in the direct nor in the inverse ratio of the aggregation." Further, he says: "The information derived will be, in my opinion, valuable, so far as it goes, to a degree which no other

TABLE XX.—*Death-rate of Patients in Dublin Lying-in Hospital from its Foundation to* 1868 *inclusive.*

Year.	Patients.	Deaths.	Death-rate.	Deaths per 1,000.	Year.	Patients.	Deaths.	Death-rate.	Deaths per 1,000.	Year.	Patients.	Deaths.	Death-rate.	Deaths per 1,000.	Year.	Patients.	Deaths.	Death-rate.	Deaths per 1,000.
	3,975c	45	1 in 88	11·3	1785*b*	1,292	8	1 in 161	6·2	1813	2,484	62	1 in 40	24·9	1841	2,025	23	1 in 88	11·4
1757	55	1	,, 55	18·1	1786*b*	1,351	8	,, 170	5·9	1814	2,508	25	,, 100	9·9	1842	2,171	21	,, 103	9·7
1758	454	8	,, 50	17·6	1787	1,347	10	,, 134	7·5	1815*b*	3,075	17	,, 180	5·5	1843	2,188	22	,, 99	10·1
1759	406	5	,, 110	12·3	1788	1,469	23	,, 64	5·7	1816*b*	3,276	18	,, 182	5·5	1844	2,176	14	,, 155	6·4
1760	556	4	,, 139	7·2	1789	1,435	25	,, 57	17·4	1817	3,473	32	,, 108	9·2	1845	1,411	35	,, 40	24·8
1761	521	9	,, 52	17·3	1790	1,546	12	,, 129	7·8	1818	3,539	56	,, 63	15·8	1846	2,025	17	,, 119	8·4
1762	533	6	,, 88	11·3	1791	1,602	25	,, 64	15·6	1819	3,197	94	,, 33	29·4	1847	1,703	47	,, 36	27·6
1763	488	9	,, 54	18·4	1792*b*	1,631	10	,, 163	6·1	1820	2,458	70	,, 35	28·5	1848	1,816	35	,, 52	19·3
1764	588	12	,, 49	20·4	1793	1,757	19	,, 92	10·8	1821	2,849	22	,, 129	7·7	1849	2,063	38	,, 54	18·4
1765	533	6	,, 88	11·3	1794	1,543	20	,, 77	12·9	1822*a*	2,675	12	,, 220	4·1	1850	1,980	15	,, 132	7·6
1766*a*	681	3	,, 227	4·4	1795*a*	1,503	7	,, 214	4·7	1823	2,584	59	,, 44	22·8	1851	2,070	14	,, 148	6·8
1767	664	11	,, 60	16·6	1796	1,621	10	,, 152	6·2	1824	2,446	20	,, 122	8·2	1852*b*	1,963	11	,, 178	5·6
1768	655	16	,, 41	24·4	1797	1,712	13	,, 131	7·6	1825	2,746	26	,, 105	9·5	1853	1,906	17	,, 118	8·9
1769	642	8	,, 80	12·5	1798*a*	1,604	8	,, 200	4·9	1826	2,440	81	,, 30	33·2	1854	1,943	37	,, 53	19·0
1770	670	8	,, 80	11·9	1799	1,537	10	,, 153	6·5	1827	2,550	33	,, 77	12·9	1855	1,060	35	,, 30	33·0
1771	695	5	,, 139	7·2	1800	1,337	18	,, 74	13·5	1828	2,856	43	,, 66	15·1	1856	1,600	25	,, 64	15·6
1772*b*	704	4	,, 176	5·7	1801	1,725	30	,, 57	17·4	1829	2,141	34	,, 63	15·9	1857	1,509	33	,, 46	21·9
1773	694	13	,, 52	18·7	1802	1,985	26	,, 74	13·1	1830*a*	2,288	12	,, 190	5·2	1858	1,084	30	,, 36	27·7
1774	681	21	,, 32	30·8	1803	2,028	44	,, 46	21·7	1831*b*	2,176	12	,, 181	5·5	1859	1,389	21	,, 66	15·1
1775	728	5	,, 145	6·9	1804	1,915	16	,, 120	8·4	1832*a*	2,242	12	,, 187	5·4	1860	1,404	26	,, 54	18·5
1776	802	7	,, 114	8·7	1805*b*	2,220	12	,, 185	5·4	1833*b*	2,138	12	,, 178	5·6	1861	1,135	59	,, 19	51·9
1777	835	7	,, 119	8·4	1806	2,406	23	,, 104	9·6	1834	2,024	34	,, 60	16·8	1862	800	58	,, 14	72·5
1778	927	10	,, 92	10·8	1807*a*	2,511	12	,, 209	4·8	1835	1,902	34	,, 56	17·8	1863	1,228	32	,, 38	26·1
1779	1,011	8	,, 126	7·9	1808*a*	2,665	13	,, 205	4·9	1836	1,810	36	,, 50	19·9	1864	1,184	26	,, 46	21·9
1780*b*	919	5	,, 183	5·4	1809	2,889	21	,, 137	7·3	1837	1,833	24	,, 76	13·1	1865	1,332	30	,, 44	22·5
1781*b*	1,027	6	,, 171	5·8	1810	2,854	29	,, 98	10·2	1838	2,126	45	,, 47	21·2	1866	1,074	40	,, 27	37·2
1782*b*	990	6	,, 165	6·1	1811	2,561	24	,, 106	9·4	1839	1,951	25	,, 78	12·8	1867	1,146	40	,, 39	34·9
1783	1,167	15	,, 77	12·8	1812	2,766	43	,, 64	15·6	1840	1,521	26	,, 59	17·1	1868	1,022	39	,, 27	38·2
1784	1,261	11	,, 114	8·7															

Total No. delivered, 190,389; Total No. of deaths, 2,609; Death-rate, 1 in 72·97 (73), *i.e.*, 13 per 1,000 or 1·3 per 100.

a represents healthy years, *i.e.*, eight years free from metria.—(Dr. KENNEDY.)

b. ,, tolerably healthy years, *i.e.*, thirteen years with metria to a slight extent.—(Do.)

c. This gives total deliveries and death-rate in Mosse's first Hospital up to 1757.—(Do.)

To a limited extent, perhaps, the breaking out of metria may account for fewer cases being admitted: wards have to be closed.

statistical information can approach, because of the long time and the large numbers involved in this great hospital's experience—above 190,000 cases in 113 years." This is truly a valuable table of statistics, because it answers the whole of the requirements necessary for statistical calculations; to master it is in itself a great feat. We shall have to refer to it farther on. The deficiency in this table, for our purpose, is the want of the classification of the deaths according to their causes. We should have preferred the deaths divided into Metria, Accidents of Childbirth, and Deaths from Non-puerperal Causes. Nevertheless, there is much useful information in the table. It and the following table and the like show, beyond all doubt, the most complete evidence of the reliability of hospital statistics as regards death-rate. In both the Rotunda Hospital and the Coombe Hospital (see Table XXI., page 62) —both large and old-established hospitals yet—the tables show an increasing success (one death in 73 women delivered) over those already mentioned, which are smaller.

MILITARY HOSPITALS.

Lying-in Huts.—We now come to Military Hospitals, and from the accompanying table (XXII., page 63) it will be observed that the death-rate is 1 in 109. Possibly military law may have something to do with the low death-rate in such hospitals. It is more or less generally believed that when contagious diseases attack, for example, a camp, isolation of the infected is had recourse to, more or less promptly, and much speedier than could be done in civil communities. Military organization and arrangements are more under command than civil are. Quarantine is put into force, and greater exactitude is practised than could be the case in a civil community. Measures are adopted with approbation—indeed, are necessarily enjoined—that would, doubtless, be considered harsh and cruel in a civil community—in or out of hospital. How far this influences the mortality in military hospitals it is difficult to tell: the fact that the mortality is smaller in these huts is a valuable one. We do not connect this success altogether with the fact that it is a hut: in such a climate as ours a lying-in woman would, we think, stand a worse chance of recovery in a hut, where the cold wind "goes quite through," than in an ordinary house. There can be no magic in a hut *per se*, or superiority or excellence over a substantial and well-appointed house. Fewness in numbers in these camp huts, and greater attention paid to ventilation, form, no doubt, the chief means for keeping down the metria mortality.

TABLE XXI.—*Return from Coombe Lying-in Hospital, Dublin, for Fifteen Years from* 1854 *to* 1868, *inclusive.*

			Deliveries.	Metria Mortality.	Mortality from all other causes.	Total	Proportion of Metria Deaths.	Proportion of other Deaths.	Total Deaths.
1854	11	421	432	5	1 Placenta previa 1 Ruptured uterus.	7	1 in 84·200	1 in 210·500	1 in 60·143
1855	13	413	426	3	2 Convulsions	5	,, 137·666	,, 206·500	,, 82·600
1856	9	502	511	4		4	,, 125·500	No death.	,, 125·500
1857	18	520	538	3	1 Post partum hæmorrhage	4	,, 173·333	1 in 520·000	,, 133·000
1858	14	413	427	4	1 Convulsions 1 Hæmorrhage.	6	,, 103·250	,, 206·500	,, 68·833
1859	8	270	278	0	0	0	No death.	No death.	No death.
1860	10	437	447	6	1 Convulsions 1 Mania. 1 Typhus fever.	9	1 in 72·833	1 in 145·666	1 in 48·555
1861	7	346	353	2	1 Ruptured uterus 1 Mania. 1 Syncope. 1 Bronchitis. 1 Convulsions.	7	,, 173·000	,, 69·200	,, 49·428
1862	10	503	513	5 Puerperal fever	1 Mania. 1 Hæmorrhage	7	,, 100·600	,, 251·500	,, 71·857
1863	20	465	485	3 Peritonitis ...	2 Debility from starvation 1 Admitted dying; sank 3 hrs. after admssn. 1 Convulsions.	7	,, 155·000	,, 116·250	,, 66·429
1864	15	506	521	1 Peritonitis ... 1 Puerperal fever	1 Convulsions	3	,, 253·000	,, 506·000	,, 168·666
1865	15	435	450	2 Peritonitis ...	1 Peritonitis, of which she was dying when admitted. 1 Bronchitis.	4	,, 217·500	,, 217·500	,, 108·750
1866	21	442	463	4 Peritonitis ... 2 Phlebitis ...	1 Typhus fever when admitted 1 Cholera. 1 Ruptured uterus. 1 Convulsions.	10	,, 73·666	,, 110·500	,, 44·200
1867	11	422	433	4 Peritonitis ... 2 Phlebitis ... 1 Pleuritis ...	1 Typhus fever when admitted 1 Bronchitis. 1 Placenta previa. 1 Convulsions.	11	,, 60·286	,, 105·500	,, 38·363
1868	21	478	499	2 Peritonitis ... 2 Phlebitis ...	1 Syncope 1 Chronic bronchitis.	5	,, 159·333	,, 239·000	,, 95·600
TOTAL	203	6,573	6,776	55	34	89	1 in 119·509	1 in 193·323	1 in 73·854

TABLE XXII.—*Return of the Number of Admissions for Parturition, and Deaths occurring in the undermentioned Women's Hospitals (Military). (Supplied by the Director-General, Army Medical Department.)*

Station.	Period.	No. of Deliveries.	Cause of Death.																Total Deaths.
			Puerperal Fever and Peritonitis, Pyæmia, Phlebitis, &c.	Scarlatina.	Puerperal Convulsions.	Hæmorrhage, Effects of.	Ruptured Uterus.	Syncope & Exhaustion.	Premature Labour and Adherent Placenta.	Craniotomy.	Inversion of Uterus.	Embolism.	Metritis.	Pneumonia and Bronchitis.	Phthisis.	Dropsy.	Cause not recorded.		
Devonport	April, 1861, to Dec., 1869	158	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	
Colchester	1865 to Oct., 1870	252	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Portsmouth	1861 to Dec., 1869	302	2	—	1	—	—	—	—	1	—	—	—	—	—	—	—	4	
Aldershot	1857 „ „	3,028	14	—	1	4	1	4	1	1	—	—	1	2	1	—	1	31	
Shorncliffe	Up to „	702	—	1	—	1	—	—	—	2	—	—	—	—	—	—	—	4	
Chatham	Dec., 1863 to „	342	—	2	—	—	—	—	—	—	1	—	—	—	—	—	—	3	
Woolwich	Nov., 1863 to „	751	5	—	—	—	—	1	—	—	—	1	—	—	—	1	—	8	
Curragh	1868 and 1869	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Total	——	5,575	21	3	3	5	1	5	1	4	1	1	1	2	1	1	1	51	

III.—LYING-IN IN UNIONS AND WORKHOUSES.

Information coming from the records of unions or workhouses, in our opinion, possesses the same claim precisely as that of hospitals, in so far as the record of death-rate is concerned. Table XXIII. gives a number

TABLE XXIII.—*Mortality of Childbed of five years and upwards, in Workhouses in London, Liverpool, and Dublin.*

Union or Workhouse.	No. of Deliveries.	Deaths.	Death-rate.
London 9 Workhouses	6,044	56	1 in 108
,, 18 ,, ...	5,826	37	,, 157
,, 13 ,, ...	2,459	0	
Liverpool Workhouse	6,396	58	,, 120
North Dublin Union	1,067	5	,, 213
	21,792	156	1 in 139

of deliveries occurring in workhouses, with the corresponding mortality, and it does seem surprising that here the death-rate is one in 139. If further data do not modify this result, the mortality in these institutions cannot be regarded otherwise than very favourable. This will come out more prominently if the facts of the case are relatively considered. The proportion of single to married women delivered is far greater in workhouses than in hospitals. Therefore Dr. Duncan's propositions, which are given below, apply with greater force to unions than hospitals, though hitherto they have been chiefly applied to explain the high death-rate of the latter. Not only does this vast difference exist, but also the class of women in unions is not nearly so able, physically, to cope with the danger attending childbirth as those in hospital as a rule. For the correctness of this observation we have the authority of Miss Nightingale (see pp. 163, 161, 104). The propositions of Dr. Duncan are :

1. The mortality of first labours is about twice the mortality of all subsequent labours taken together.
2. The mortality from puerperal fever following first labours is about twice the mortality from puerperal fever following all subsequent labours taken together.
3. As the number of a woman's labour increases above nine, the risk of death following labour increases with the number.
4. As the number of a woman's labour increases above nine, the risk of death from puerperal fever following labour increases with the number.
5. If a woman have a large family she escapes extraordinary risk in surviving her first labour, to come again into extraordinary

and increasing risk as she bears her ninth and subsequent children.

It seems to us, from the table just given as indicating the mortality in workhouses, that these propositions do not account for the difference in the death-rate between them and that found in hospital. The principles pervading these propositions apply with greater force to workhouses than hospitals. More than half the women delivered in unions are unmarried, while only one of the four lying-in metropolitan hospitals admits single women. But if the mortality of hospitals, as in Table XL. (page 98), be compared with the table just given, the difference will be very marked. The main source of safety in the lying-in ward of a workhouse is the small number of women delivered at the same time.

Extract from Speech of Mr. Gathorne Hardy (Viscount Cranbrook).—"One point is remarkable enough : it is that, however overcrowded these (workhouse) infirmaries may be, none of those diseases appear there which are known to result from overcrowding. There are no hospital diseases, and it has attracted attention abroad as well as at home how very few are the cases of puerperal fever, which so often decimates lying-in hospitals, and in France, I believe, causes death to an extent of which we have no conception. Even in our own lying-in hospitals these cases occur to a much larger extent than in the metropolitan workhouses."

The Cubic Space Commissioners state in their report, page 4 :— "One very remarkable fact disclosed by these returns is the infrequency of childbed fever, and the small ratio of mortality produced by it, in those (the English) poorhouses where, within the last five years, nearly 12,000 poor women have been delivered."

The Cubic Space Commissioners again remark (Report, page 5) :— "The general exemption of the lying-in wards in the workhouse infirmaries from serious disease, and especially from puerperal fever, and the very small mortality which they present, have already been noticed. It appears, indeed, from a minute analysis of the returns laid before the committee on this subject, that in point of fact a very large air-space, much exceeding 850 cubic feet, has been enjoyed on an average by each of the parturient women in almost all the workhouses. The comparative freedom of the lying-in wards from disaster may probably have been owing in part to the ampler air-space thus actually shared among the women, though the committee are conscious that much of the immunity was attributable to other causes."

IV.—OUT-DOOR PRACTICE AT HOSPITALS, DISPENSARIES, &c.

Result so unsatisfactory that the Statistics are of little use.—To put a value upon this class is one of the most puzzling points that we have to settle. It appears from the remarkable prominence given by the Registrar-General to two notable institutions, that there is considerable difficulty in coming to a satisfactory conclusion respecting the mortality in out-door practice of this kind. Were it not for these two institutions—the Royal Maternity Charity in London, and the Birmingham Lying-in Charity—we should have been placed in a far less difficult position, for there can be no doubt that the weight of evidence is against reliance being placed upon statistics obtained from this source, while at the same time these two institutions carry with them an air of reliability and honesty which is not easily shaken. The common sense of the profession would confirm Dr. Duncan's opinion, when, commenting upon the nature of such incredible data, he says, "Then it is a rational and a necessary conclusion that they should recommend all lying-in women to espouse the poverty, filth, and debasement of the poorest classes, and should have a student, a midwife, or a neighbour to attend them." Tables XXIV., XXV., XXVI., and XXVII. are here

TABLE XXIV.—*Extracted from the Royal Maternity Charity Annual Report, 1875.*

Divisions.	Deliveries.	Males.	Females.	Twin Cases.	Still-Born.	Medical Cases.	Deaths of Mothers.						Deaths of Infants.
							Puerperal.			Non-Puerperal.			
							Lockjaw.	Convulsions and Hæmorrhage.	Peritonitis.	Pleurisy.	Heart and Kidney Disease.	Lead Poisoning.	
Eastern	2,120	1,143	1,003	26	48	70	—	—	—	—	—	—	10
Western.....	737	400	348	11	14	10	1	1	1	1	1	1	3
Southern ...	106	59	47	—	—	4							—
Total.....	2,963	1,602	1,398	37	62	84	1	1	1	1	1	1	13

Maternal mortality 1 in 494.

introduced to show the perplexing state this department is in. Now, where such vast differences exist there must be errors somewhere; suspicion necessarily will cling to data claiming great superiority till fully enquired into and corroborated. Drawing a conclusion from such data is absurd. The most eminent men in this department of

TABLE XXV.—*Abstracted from the Royal Maternity Charity Annual Report, 1876.*

Districts.	Deliveries.	Males.	Females.	Twin Cases.	Still-Born.	Physicians' Cases.	Deaths.					
							Infants.	Mothers				
								Puerperal Peritonitis.	Placenta Prævia.	Post Partum Hæmorrhage	Puerperal Convulsions.	Embolism.
Ea ern	2,257	1,173	1,103	19	73	102	10	2	1	1	1	1
Western.....	695	397	308	10	28	12	5					
Southern ...	117	63	55	1	1	3	—					
Total	3,069	1,633	1,466	30	102	117	15	2	1	1	1	1

Maternal mortality 1 in 511.

TABLE XXVI.—*Abstracted from the Royal Maternity Charity Annual Report, 1877.*

Divisions.	Deliveries.	Males.	Females.	Twin Cases.	Still-Born.	Physicians' Cases.	Deaths.									
							Infants.	Mothers.								
								Puerperal.						Non-Puerperal.		
								Extra uterine fœtation delivered by abdominal section at 20th month of gestation.	Post Partum Hæmorrhage.	Placenta Prævia.	Effusion of Blood into cellular tissue of pelvis	Pelvic Abscesses (seven months).	Peritonitis.	Consumption 7 days after Delivery.	Ch. Bronchitis.	Fatty Disease of Heart.
Eastern	2409	1262	1174	27	73	79	9	1	1	1	1	1	1	1	1	1
Western	578	320	262	4	7	15	4	—	—	—	—	—	—	—	—	—
Total.....	2987	1582	1436	31	80	94	13	1	1	1	1	1	1	1	1	1

Maternal mortality 1 in 332.

the profession certainly doubt the correctness and the reliability of the statistics obtained in this manner. There is too wide a difference between the proportional mortality in the Birmingham Lying-in Charity and the London Maternity Charity—which together does not exceed a death-rate of 2·3 per 1,000 deliveries (that is, less than half the average recorded proportion of puerperal mortality in England)—on the one hand;

TABLE XXVII.—*Maternity Practice (Dr. Churchill).*

Place.	Cases.	Deaths.	Proportion.	Puer. Fever.	Deaths.	Proportion.
Wellesley Dispensary	442	4	1 in 100	about		
Royal Maternity (Dr. Barnes)...	18,751	56	,, 329			
St. Petersburg, 18 years ...	207,582	1,453	,, 143			
Glasgow, 1857 to 1868	4,800	47	,, 102			
Rotunda Hospital, 7 years ...	617	10	,, 61			
Coombe	4,473	20	,, 223			
Total.....	236,665	1,590	1 in 149	about		

and on the other hand, the opinion of men who have given so much attention to this subject as Dr. M'Clintock, Dr. Duncan, and others, who reckon the normal mortality of childbed at about eight to the 1,000. This difference between the recorded results of these two charities and the opinion of men so well able to judge a question of this kind is not explainable, except mainly on the hypothesis that there is something amiss in the records of the two charities mentioned, or that their success is a pure coincidence, explained by the doctrine of chance. It does seem strange that eleven maternal deaths are recorded as having taken place *last year* in 3,133 labours in connection with the Royal Maternity Charity, instead of six annually as before; that is, a mortality of one in 284, instead of a mortality of nearly half that amount. Even one in 284 is only half of what other eminent authorities believe to be nearer the mark. In all probability the higher death-rate now recorded may, to some extent, be explained by a new feature expressed in the last report, to the effect of their taking "means of ascertaining the health of mother and child in all cases up to the tenth day, and, beyond this, up to the end of the month," while formerly the nurse was only asked to visit the patient three times after delivery. But even this is insufficient to explain all.

Mr. Brudenell Carter, in an interesting paper on "The London Medical Schools," in the *Contemporary Review* for February, 1879, has introduced a note from "An Eminent Accoucheur" bearing upon this point. It is as follows:—"The aid of our students in this way is eagerly sought by the poor; and, wherever a hospital school comes into competition with the Royal Maternity Charity, the work of the latter dwindles. This is a fact which a glance at the London map of the areas at work will prove. Thus, the vast bulk of the Royal Maternity Charity work is in the east of London, where there is only the London

Hospital to compete. In the south, where there are Guy's and St. Thomas's, the Royal Maternity Charity has abolished its district. It is literally beaten out of the field; and in the west, where many schools compete, its cases are much under one thousand a year."*

The "Lancet" on Out-door Practice.—Notwithstanding the high authority of the *Lancet*, as expressed in the accompanying paragraph (Leader, May 24th, 1879): "Out-door maternity charities, the establishment and support of which offer the most advantageous employ-

* If the spirit of the following plan of conducting the extern midwifery practice at the Metropolitan Schools were literally carried out as it is here so well laid down by Mr. Brudenell Carter, it would be indeed valuable. We know of nothing which approaches this in the provinces:—"The general arrangements of the maternity departments of the London hospitals, allowing for slight differences of detail, are as follows: Under the principal teacher—always a man of eminent position in his calling—there are, according to the size of the school, one or more paid assistants, legally qualified practitioners, selected on the score of character and fitness. Students of a certain standing, who have received the necessary preliminary instruction, are placed upon the list of attendants upon lying-in women; and each student is required, by the regulations of the examining boards, to attend from ten to twenty cases, according to the qualification he desires. At most hospitals twenty cases can be attended within a fortnight or three weeks; and students get the work over as soon as they can in order to be set at liberty for other duties. The summons from a lying-in woman goes to the qualified assistant in charge at the hospital, and he passes it on to the student next upon the rota, who is required to remain within easy reach of a call. No student is allowed to go to his first case alone, but always either with another student who has already had some experience, or with the qualified assistant; and in case of any difficulty, the student in charge is enjoined to send for the qualified assistant without delay. He, if he finds the case to be a serious or threatening one, sends, in his turn, for the head of the department. It follows that the patients are sure, in the event of there being any danger, to obtain the services of a consultant of the highest class; while, in all ordinary cases, they are looked after far more carefully, both during and after delivery, than they could be by any means which they could themselves command. There need be no appeal, such as Mr. Gilbert describes, for subscriptions in aid of these departments, which are maintained at no further expense than the stipends of the paid assistants; and it would be difficult to conceive any form of gratuitous medical service which accomplishes, even independently of its educational value, so much good at so small a cost." As a set-off, at least in part, against this superiority of the metropolitan midwifery teaching, see Dr. Playfair's views (page 187). Dr. Playfair's opinion is of great importance, because he is himself a teacher of midwifery. He concludes thus:—**"I and my fellow lecturers send their pupils into the world ignorant of half of midwifery, knowing next to nothing of the application and uses of obstetric instruments, and scarcely having heard of the diseases of women."**

ment to thousands of women who are clamouring for useful work, might be made powerful engines for the promotion of public health and sanitary progress. Not only may a maternity charity save a large proportion of lives and suffering due to the neglect and mistreatment of women in their hour of need, but, properly directed, may exercise powerful influence in reducing the excessive rate of infant mortality due to the mismanagement of infants. Generally, puerperal and infant mortality are more intimately connected with the case of out-door maternity charity *versus* ly. g-in hospitals than is, perhaps, commonly admitted," we doubt if Table XXVIII., annexed, will confirm the opinion expressed in the above in regard to the saving of infants. In this

TABLE XXVIII.—*Home Deliveries (Glasgow).*

Deliveries.	Deaths of Mothers.							Children.							
	Convulsions.	Puerperal Fever.	Post partum Hæmorrhage.	Metro-Peritonitis.	Exhaustion.	Total caths.	Death-rate 1 in	Born alive at full time.		Still-born at full time.		Born prematurely (alive).		Born prematurely (dead).	
								Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
698	1	5	1	1	1	9	77	348	269	32	27	8	0	13	12

Maternal mortality, 1 in 77; Metria mortality, **1 in 113.**

table it will be seen that one in every nine was still-born. In fact, if a plebiscite of the profession were taken respecting their knowledge of out-door practice, in connection with our teaching hospitals, maternities, and so on, the system would be condemned *en masse*. We all know how perfunctorily the duties of students are performed, how necessarily it must be so, and how very hazardous it must be to the health and life even of the mother, and much more so of the child. This being so, we are in doubt at present respecting the exact rate of mortality in this division, and we are at a loss to know how to make use of the statistics at hand, we must therefore postpone our inferences and conclusions on this head. N.B. Metria mortality 1 in 113.

Dr. Kennedy even could not venture to draw any comparison between hospitals and "out-door" practice. He has given us this testimony, that "he had no confidence in their statistics."

Dr. Denham expresses the case very aptly thus: "The statistics of out-door lying-in patients I pronounce to be utterly worthless and unreliable." This "fact has long been patent as the noonday sun to all."

"To any who may not know the fact, I am prepared to prove that many, very many, poor women attended at their homes by students or midwives are never seen more than once or twice after their delivery, and that they are often, very often, obliged to seek advice from the dispensary doctor of the district, or go into some neighbouring hospital. Under such circumstances, these patients are seldom put down as puerperal cases; but, whether they live or die, they never again trouble the registry of the maternity or hospital from which, in the first instance, they received assistance, but remain there natural labours recovered, as first entered, to swell the list of successful out-door practice, and proclaim aloud the super-excellence of home relief over that of hospitals."

Infant Mortality in "Out-door" Practice probably much Larger than that in Hospital or elsewhere.—Here a very interesting question opens itself up to us, and one which ought to have some weight in dealing with the question of hospital practice *versus* home practice. What of the infant mortality in hospitals and out-door practice? Whatever statistics may meantime say on this point, it cannot obliterate impressions learned from experience and observation. Those who have the oversight of "maternities," *i.e.*, out-door or extern midwifery practice, are painfully convinced of the number of infants lost—inevitably lost—from the ignorance or want of experience or supervision of the attending nurse or student. Experience must be obtained, and our schools do not provide supervision (see p. 69). True, there is help, if asked, in cases of difficulty, but an act like parturition is instantaneous; promptitude is everything, and a midwife or a student cannot perceive danger in a moment. Time, however, is important; the surrounding circumstances are against one, and one's wits are not always about one. Acquaintance, knowledge, and instant action are supremely necessary. What monthly nurse, what midwife, what student, can be even supposed to be equal to an emergency on her or his first start?—not one in a hundred. Fortune does not always favour the brave, but fortune favours the woman at such times when parturition is natural and easy, and when no complication or difficulty springs up. Should anything inadvertently happen to the child in its birth, it is easy to say that it was still-born: the same "experience" (or inexperience) only is necessary for such an assertion.

We have no statistics from the Registrar-General to help us in making a comparison between the number of children "still-born" in

hospitals and maternities or private practice. There is an alteration, however, in the new Registration Act bearing upon still-born children, by which they must be **certified**, though not **registered**. In France still births are registered. The only notice we can find the Registrar-General taking of this subject is in the 38th Annual Report, where it is said, "In England the proportion of still-born children to total births is **supposed** to be about 4 per cent., but this is uncertain." We can only, meantime, commend this subject for enquiry. Our impression is, that 4 per cent. is too great for private practice, and also, if the results were known, that there are far more children "still-born" in the out-door practice department in connection with hospitals, maternities, dispensaries, than occur in hospital or ordinary private practice. Of course there are exceptions to every rule. There are many reasons why this should be so—in fact, we do not see that it can be otherwise, and we think that this is an element certainly that ought to be taken into account in discussing the value of hospitals.

V.—RESULTS IN PRIVATE PRACTICE.

To us there seems **nothing** satisfactorily concluded in regard to this division. Le Fort's death-rate of one in 212 we have dealt with before; although nominally of home deliveries, it is not strictly so. They (the data) do not represent private practice. Sir James Simpson does not pause to question this conclusion; indeed, the data appear to him to fit in with his own opinion, and, strengthened by the returns of the Registrar-General, he accepts them. Dr. Kennedy

TABLE XXIX.

Authority.	Patients.	Deaths.	Death-rate.	Death-rate per 1,000.
Dr. Campbell	1,500	13	1 in 115	9
Sir James Simpson	180	4	,, 45	22
Dr. Matthews Duncan	736	8	,, 92	10
Dr. M'Clintock	1,000	12	,, 83	12
Dr. Uvedale West	3,100	23	,, 134	7
Dr. Thomas Hamilton	402	7	,, 57	17
Dr. Charles Egan	400	8	,, 50	20
Dr. W. T. Greene	1,500	12	,, 125	8
Dr. G. Jones	2,000	16	,, 125	8
Total	10,818	103	1 in 105	9

seems to have done the same. We do not see how this matter can be satisfactorily settled at present. No table that we have seen is enough to prove what the actual death-rate is in private practice. To make a table from the practice of eminent physicians is faulty; it is like a double-edged tool, it cuts in two ways at least. The more eminent a man is in any particular branch, he is certain, from that very cause, to attract difficult cases to him—cases whose deaths are inevitable, while, at the same time, he may be the means of saving some who might otherwise die. On this account we put little or no reliance on the table already given, an improved edition (XXIX.) of which has appeared in the current medical journals as seen by the table in the preceding page.

It should not at all surprise us to know that eight or more patients out of 180 died in the practice of the late Sir James Simpson, or in Dr. Duncan's, or in Dr. M'Clintock's, or in the practice of any eminent consulting accoucheur; but even a far smaller death-rate would surprise us if coming from a medical man engaged in general practice.

The principle laid down by Mr. Holmes concerning a high death-rate indicating the usefulness and efficiency of an hospital, and *vice versa*, may apply with much more force to men who have acquired a world-wide reputation, and who therefore attract a number of difficult cases to them. We are thankful of the opportunity thus afforded us, through such a just principle, of explaining the high rate of mortality in the practices of great men. Truth never asks us to slander. England ought to be and is proud of such men as Simpson, Churchill, Duncan, M'Clintock, Barnes, West, &c., and we only wish there were many more giants like them in this branch of the profession. There are plenty of men to be found who will run well **with** the tide—men of policy, but men who cannot stand under the fire of opposition. On account of the principle enunciated by Mr. Holmes, it is quite unfair to accept the tables referred to. If cases were regularly kept by practitioners, or a limited number of them, in special registers for the purpose, and duly sent to some central place where the results might be carefully tabulated, a valuable deduction would be obtained.

In discussing elsewhere questions concerning the choosing of the best place to nurse our sick in, we could not help referring to the question of hospitals, as it affected a great class of our sick. At that time (1873) we stated our opinion of the issue as raised by Sir James Simpson (Hospital *versus* Home) as follows:—

On entering upon the consideration of the choice of the sick-room, we at once meet with a difficulty, viz., that in the great majority of cases

we have no power of choosing, in consequence of there being no alternative, and sometimes, from the very nature of the case, it would be imprudent to change the sick person from one room to another. Speaking generally, a community or a town may be divided into three great groups: 1st, the poor; 2nd, the great body of the working-class population—artisans, mechanics, of the better sort; 3rd, the middle and upper classes.

The poor, who have inadequate means of procuring the necessary comforts of life during health, and who have made no provision for themselves in disease; whose dwellings are totally unsuited during sickness; and for whom charitable institutions are provided, such as workhouses, hospitals, &c. The choice of a sick room for the numerous members of this group lies between their own wretched dwellings, and one or other of the charitable institutions. The sanitary arrangements of the latter, therefore, demand attention. The inquiry regarding the usefulness of our present hospital system has received much attention lately, and it must receive more still. It is affirmed, on the one hand, that the dwellings in the densest and most filthy parts of our cities (wretched and miserable as these are as regards the general comforts of life) are more to be desired than our present hospitals, as they are, or indeed can be, on account of the principle of aggregation; while, on the other hand, this is totally denied. In other words, the one party say that by taking the sick from their own homes, and by placing them in a hospital, however great its advantages may be, their lives are in a more dangerous condition than if they were allowed to remain in their own homes with all their disadvantages. The other affirm the opposite, and approve of the present arrangements. Such is the nature of the enquiry concerning the usefulness of hospitals; and from data which appear to be gathered from the same sources, both parties seem to establish different inferences and conclusions.

The discrepancies thus manifested arise from the want of comparable data, and of trustworthy statistics, to determine the question satisfactorily. The average death-rate is taken as the standard of comparison. Undoubtedly it is an element, but is it a sufficient test to settle this question? It will be admitted that it is one of the most accurately ascertained and definite points that we at present possess bearing directly on the subject, but is it of itself sufficient to decide it?

With regard to the sources from which the statistics are obtained, it may be affirmed that they are not definitely enough stated on either side. Private practitioners do not generally keep a register of their

cases, and even if they did it would be a laborious matter for them to look back in their case-book for a period, say of 20 or 30 years, and spontaneously give their experience. This is not at all likely, and it will be **universally** admitted that the recording from memory is exceedingly deceitful, and scarcely to be depended on in a question of such vital moment to the country at large. We cannot wonder, therefore, that deaths may be omitted to be recorded, while it is not at all likely that any will be added. In reference to hospital statistics, few who know them can say that they are perfect in all their details, except the simple record of death. Perhaps in the matter of death-rate (the test with which we have now to deal) they are as good as statistics on a large scale almost can be. But they do not enter into the circumstances connected with the cause of death, which is an important element in a comparison of this sort. In a comparison like the present, based upon the death-rate, we cannot fairly separate the history of the case from the final result; in other words, we must judge of the individual histories of the cases to be compared in and out of hospital. Statistics only deal with the matter of deaths, and take no cognisance of the histories, nor the cases benefited, relieved, &c., which ought to be reckoned if we wish to put both kinds in the balance.

Of course it is denied by those who have agitated this question that the one source of statistics is inferior to the other, although the bulk of evidence would certainly show to an impartial and careful observer that hospital statistics can be more depended upon than those obtained from private practitioners of many years' experience. All will admit that there are errors in both—the one more than the other; and, both being faulty, what logically must be the conclusion? Manifestly, therefore, if there is to be a comparison between home practice and hospital practice, other considerations than death-rate must be introduced before it can be satisfactorily decided.

Sir James Simpson, being perfectly cognisant that all statistics were faulty to a greater or less degree, believed that in the present case both sides were pretty equal in that respect, that a fair comparison could be instituted between them, and a conclusion as near the truth as possible arrived at. He, therefore, most energetically collected an unparalleled mass of statistics, raised no further doubt regarding them, but proceeded to compare them, and so made out a very fair case against hospitals, and in favour of the sick being treated in their own homes. The inference, if his premises are granted, was logically true enough, yet it is impossible to suppose at present that the same amount of misery and

suffering could be ameliorated by stopping the present system of hospital relief; and, for example, by sending instead all the hospital physicians, nurses, &c., to visit these hospital patients at their own homes. The latter, at all events, seems quite inexpedient.

Surely it will be admitted that the medical treatment, hospital care, and attendance, the abundant supply of the best food, and all the comforts of life, as obtained in our hospitals, are much better than the patients could possibly have in their own homes, where all that has been mentioned is certainly at a minimum. It must be remembered that in hospitals the sick are as well attended to and cared for as the rich can be, and perhaps in the majority of cases better. For note the difference between the two classes: the hospital patients are brought from poverty (in all probability a cause of their illness), and put into a place where they will receive as much as is useful for them; the rich, again, often suffer in consequence of luxurious habits and the like, which must be put in subjection when they are ill. Now it is generally easier to cope with the former class than the latter.

But what, then, can be the great arguments against hospitals and in favour of the homes of the sick poor? They seem to be these—hospital influence (called "hospitalism") and home influence.

Hospitalism may be lessened, not by the complete extermination of hospitals, for pyæmia, for example, will occur in isolated houses where there is not more aggregation than usual; but it will be lessened, not stopped, in or out of hospitals, by more careful treatment, and more strict attention to the nursing of the patient. Doubtless, when pyæmia occurs—as it often does in our hospitals, and carries off with it patients more certainly than most other contagious influences—segregation is one of the chief means to prevent it from spreading.

Cottage hospitals may prove exceedingly useful in this respect, and there can be little doubt of their practicability. Indeed, it might be said further, that by some means of hospital extension—making the accommodation co-extensive with our requirements—hospitals would be much more advantageous than they are at present, on the palatial system, if we had to go over the whole work again.

With regard to *Home Influences*, much may be said for and against; there is no denying that the happiness obtained by the sympathy of those who are near and dear to the sick person is important, and has a certain effect on the nervous system; the patient's hopes are buoyed up at home, and, in some cases, a cure may be more easily effected in particular circumstances. It is very doubtful if these home influences

can be at all considered as possessing claims equal to the regimen and attendance in hospitals. Just imagine a sick person taken from a home of poverty and misery, filth, and all sorts of abominations, with *insufficient* food, and, too frequently, no medical attendance or nursing, and put into a nice ward—cottage hospital if you will—where all the comforts of life are supplied in rich abundance; surely in such cases the usefulness of hospitals cannot be doubted nor too highly commended. Attention is directed to this view of the subject, for it is a generally received opinion among the classes for whom hospitals are intended, that attention to matters of detail, more especially in nursing, is inefficiently, grudgingly, and harshly performed in hospitals; this, doubtless, has tended to bias the minds of the poorer people, so that they have fostered a dread and horror of hospitals instead of receiving them as privileged blessings. It seems plain, therefore, that there are many other collateral considerations to be examined in deciding this enquiry, as well as the mortality. By all means stamp out *hospitalism* by better accommodation and nursing.

We are, however, far from saying that Sir James Simpson's conclusions are wrong. It is possible to jump at conclusions more or less correct, or, at least, having some truth in them, although the method or steps adopted may be inadmissible for making a fair comparison. The subject is one that affects us only indirectly, and we give his conclusions in the hope that the subject may be taken up and sifted by those more immediately concerned. We think it far from being satisfactorily settled at present. The principle advocated in these propositions of Sir J. Simpson, we have no hesitation in saying, is proved not to be true in so far as maternity hospitals are concerned.

TABLE XXX.—*Showing Death-rate according to Size of Hospital.*

	DEATH-RATE.
1st Series.—In large and metropolitan British hospitals, chiefly containing from 300 to 500 beds or upwards, out of 2,089 limb amputations, 855 died, or	1 in 2·4
2nd Series.—In provincial hospitals containing from 201 to 300 beds, out of 803 limb amputations 228 died, or	1 in 3·5

		DEATH-RATE.
3rd Series.—In	provincial hospitals containing from 101 to 200 beds, out of 1,370 limb amputations, 301 died, or	1 in 4·4
4th Series.—In	provincial hospitals containing from 26 to 100 beds, out of 761 limb amputations, 134 died, or	1 in 5·6
5th Series.—In	provincial hospitals containing 25 beds or under, out of 143 limb amputations, 20 died, or	1 in 7·1
6th Series.—In	British private country practice, with the patients operated on in single or isolated rooms, out of 2,098 limb amputations, 226 died, or	1 in 9·2

We may state our belief that if the last series in this table had been altogether omitted, the table would have commended itself generally to the favourable consideration of the whole profession as data fit for making a comparison. By inserting the 6th Series there is a feeling throughout the profession that the case has been overstrained, and therefore it is best left alone. There is an attempt to prove too much, hence excellent work has been invalidated, and a strong position made weak. If the assertion be true that advocates lose their case by overstating it when it is good, we can also here conscientiously say that there can be no better example of overstepping reasonable bounds by trying to press home an argument by strained hypotheses and doubtful premises.

Before making this summary, Sir J. Simpson took his stand on a series of twenty-one propositions ; only five of these, however, deal with the subject in such a way as to form an acceptable basis of argument in searching for the truth in a question of such vital moment. The other sixteen propositions are taken up in comparing the results of hospitals with country practice. Those who have most to say in this matter almost unanimously deny the fairness of the premises to be compared. If not admitted, they should be proved to be comparable before drawing conclusions from them. For there ought, in the first instance, to be some agreement about the data to be compared. If there be doubt about the data, no satisfactory conclusion can be received. We have thought, and think still, that residence itself will never prove acceptable to the great body of medical men, as affording ground fit for comparison in the settlement of a question where such grave and

varied interests are at stake. It would have been better had Sir J. Simpson taken the five propositions referred to, and if he proved them the case was won. We must refer the reader to his work for the complete elucidation of his views.

From the mass of pertinent statistics, gathered by Sir James with marvellous industry, arranged with the adroitness of a consummate expert (for this was one of the last of the many field days of this great officer, and we were privileged to serve under him at this time), and backed up by a powerful appeal to the reason, feelings, and common sense, it was no easy matter for any one voluntarily to come forward and gainsay his statements.

The general drift of his views is that people have a better chance of recovery (whether from disease, from accident, from operation, but particularly from childbirth), if attended to in their own house, than in hospital; aye, even under the most adverse circumstances of poverty, indifferent nursing, and irregular medical attendance. That life is imperilled by entering the well-appointed wards of a city hospital.

Sir James arrived at the conclusion—rightly or wrongly—that our hospitals were banes instead of blessings in consequence of (1) their age, (2) aggregation. In our opinion, there is not sufficient evidence to support such conclusions. There are frequent instances to show that newness is not an advantage. Undoubtedly, there is a great convenience in having a number of sick indigent people to be waited on together in a ward, but it is open to doubt whether the increased mortality which generally accompanies the aggregation of patients in hospital is not an evil which can be prevented or overcome by increased attention to sanitary arrangements. The questions mooted are thus, it is seen, of vast importance, for they affect not only the patients who are sent to hospitals, but also the general community, which would certainly be more exposed to the risk of contagion, were infectious maladies, as a rule, treated in private dwellings. No doubt the evils of aggregation must be, in a great degree, dependent on the structural arrangements of the hospital.

The propositions which bear upon the present subject are the following:

I. The aggregation or isolation of patients regulates, in a marked degree, the re-	I. We think this is true within certain limits. When aggregation approaches or amounts to overcrowding, there can be no doubt of the result; but surely there is a sense in which the individual is safe, granting him cubic space of a required and adequate extent. We must not, however, confound the individual with the mass. There are many valid reasons why a greater

sults of operations, &c., upon them.

percentage of deaths should occur in hospitals or in towns than in the country, when taken in the mass. The hospitals attract patients from the country in such vast numbers because, probably, practitioners will not do anything for them from a variety of motives—some good, others doubtful. We principally refer to operative cases. Patients flock to the professional men in our towns. Under such circumstances the death-rate must be high. We are not affirming that greater care ought not to be observed in selecting cases suitable for operation. Much may be said on this view of the question. Then difficult cases are drafted into hospital from all parts of the country, to obtain the more accurate knowledge and skill and experience of the special teachers at our hospitals. This is right and proper, for it is reasonable to suppose that practitioners would send to hospital cases presenting obscure and suspicious points. This is one great object of an hospital. Also cases are sent where there are no adequate means of giving assistance in their houses, either at the operation or in the subsequent treatment. There can be no doubt that in some few well-selected cases, perhaps, *e.g.*, where accidents (very serious it may be) befall persons in the country, operations may be performed with greater success on a limited number of individuals; but in the mass it is reasonable to suppose that the two classes—country and hospital practices—are not at all on a comparable basis.

To show that this cannot be the case, notwithstanding that we may not have pointed out where the exact error lies, let us suppose for the moment that the inference from the data, namely, that an operation performed in the country is as safe as that performed in town or hospital—we say let us suppose the inference is correct. Would any one in his common sense go to the country to have a critical operation performed by a practitioner because he is in the country and busied with the ordinary duties of general practice? The reader can answer that. Further, what would be the death-rate if all cases in the country were operated on in the country, and no case sent into hospital at all? We trow a different tale would be told, and those who sing the praises of safety in country practice, as it now is, would then perhaps "hang their harps on the willow tree." But might we not carry this a little further still? If the bases of comparison be correct—that the results of operations in city hospitals (or cities themselves)

are so bad, and the results of operations in country practice so good—why do not the people flock to the country to have their operations performed? Why do we not find surgeons strong enough in argument and persuasion to keep the country patients in the country, and attract the city patients to the country?

Finally, we may conclude this by a reference to our own subject—its laws are different and better understood, and the information on that account more telling. See Table IV., pages 15 and 16. Out of 127,444 children born in London, 585 mothers died (*i.e.*, **1 to 220**); in North Wales, out of 14,397 children born, 127 mothers died (*i.e.*, **1 to 113**). There can be no question about the degree of aggregation in these two places.

VIII. The deaths after amputation of the forearm in hospitals result, in the main, from those pathological causes which are usually ascribed to morbific hospital influences.

VIII. The chief evidence on which this is stated is the opinion of Mr. Holmes, who affirms "that Pyæmia is certainly the **most** commonly fatal of secondary surgical affections." Sir J. Simpson gives this further evidence in support of his proposition :—

"Of eight deaths after amputation of the forearm at Guy's Hospital, Dr. Steele informs me that three were from pyæmia; a fourth was from pleurisy (perhaps merely one form of pyæmia); a fifth from tubercular phthisis; and a sixth from phagedenic sloughing and pleurisy (possibly pyæmic). A seventh death was from tetanus; and the eighth from cancer of internal organs."

Although the evidence on this point is not so conclusive as might be wished, yet there can be little doubt that the proposition contains truth.

XIX. Surgical patients in surgical wards seem sometimes to have pyæmia or surgical fever induced by the accidental inoculation of the morbific secretions formed in the

XIX. This seems a fair inference from many observations, and surgeons have long acted upon the truth of this proposition. See Dr. Kennedy's eighth proposition, page 94, and commentary thereon.

bodies of other patients previously affected.

XX. The air breathed by patients, aggravated in surgical wards, becomes morbific and dangerous by its containing various inorganic and organic material, and by the inmates mutually vitiating it more or less by the exhalations and excretions from their wounded, ulcerating, and sick bodies.

XX. This proposition would require delicate handling. There can be no doubt of its truth, if patients are not properly attended to an unwholesome atmosphere would be generated. By repute a certain metropolitan hospital (that prides itself as being the chief of its kind, and as paying great attention to sanitary matters) is renowned for its bad smells—the smells are described as "awful," its mortality is high.

It stands to reason that there is a something given off, even about the most healthy and particular persons, by which a dog can, for instance, trace its master's track, although thousands have passed on the same road after him. And if this be so, how much more easy is it to perceive what must occur in an hospital, and that the sick and weak are liable to affect others, and to be, in turn, affected by them, particularly in regard to puerperal patients.

Our duty, therefore, is to remove injurious effects by cleanliness, proper nursing, and scrupulous care. Everyone is at times, it is well known, more liable to suffer from morbific influences than at other times. The lying-in state is peculiarly susceptible to be affected with particular kinds of smells, or whatever it may be—miasm, septic influences, &c.

There is no place better suited to detect good nursing than the lying-in room. There should never be anything offensive perceived therein.

XXI. The residence in hospital wards of men in a state of relative bodily health is attended with a loss of life markedly greater than when the same class of men are not thus

XXI. This does not appear to us to be proved. The evidence Sir J. Simpson gives in support of this proposition refers solely to lunatics. But it is not proved or accepted that this is true even of lunatics, or at least it may be otherwise explained. But all will admit that there is no similarity between such a condition of body—one so chronic, and not of itself shortening life—and acute diseases or conditions where prompt action for the preservation or saving of life is generally requisite. What may be true of lunatics might not hold good in the case of patients in hospital and patients in private cottages and dwellings.

There can be little doubt that impurities are given off from the bodies of all, even in health, and also when many are aggregated, morbific influences accumulate

hospitalized, but allowed to reside in private cottages and dwellings.

and are more prevalent; consequently, more air is not only required, but a greater quantity is necessary to neutralise these injurious influences. There is plenty of oxygen in the atmosphere to effect this when the air is in motion, but the close days when the air is almost stationary are very trying. The only course left to us on such occasions as these, is to sedulously remove at once all effete matter and refuse, and pay the greatest attention to cleanliness, ablution of the body, and other sanitary measures.

We must content ourselves with simply enumerating the other propositions; they are:—

II. The preceding differences iu the death-rates of different classes of hospitals are "not to be explained by differences either in the constitution of those operated upon, or in the nature of the injuries or diseases for which they were admitted."

III. Limb amputations are more than three times as fatal in our large and metropolitan hospitals than the same operations are in private country and provincial practice.

IV. In country practice iucreased experience in amputations gives a still higher ratio of success to the results of the operations.

V. Limh amputations in country practice are far more successful as compared with the practice of large hospitals, not only when taken as a whole, but when the amputations are taken singly and individually.

VI. The contrast between the mortality of amputations in country practice, as compared with hospital practice, is proportionally more marked and pronounced in the slighter than in the greater amputations of the limbs.

VII. Amputations of the forearm are ahout twenty or thirty times more successful in country practice than in the practice of our large and metropolitan hospitals.

IX. Douhle amputations are very fatal in hospital practice, hut are recovered from in private country practice in as great proportion as single amputations are recovered from in large and metropolitan hospitals.

X. Limb amputations, when performed on persons above seventy years of age, form very fatal operations in hospitals; but in isolated rooms in country practice they are not more lethal than are limh amputations in hospital practice when executed upon persons of all ages.

XI. The differences hetween the death-ratcs after limh amputations in country practice and in hospital practice are (to employ Mr. Holmes's words) "evidently enormous, and surely not to be explained hy differences either in the constitution of those operated on, or in the nature of their injuries or diseases."

XII. The country amputations, though far more successful, ought to be more perilous and fatal than the hospital amputations, inasmuch as they contain a marked excess of amputations for injury; which traumatic amputations are more dangerous than amputations for disease.

XIII. The state of paticnts at the time of operating in these (traumatic) amputations is precisely the same in country practicc and in hospital practice.

XIV. Primary amputations are chiefly for the worst forms of compound fractures of the limbs; and the hospital surgeon of necessity sometimes operatcs in a less scvere form of these injuries than the country surgeon, and hence ought to he more successful, but is not.

XV. In consequence of the relative severity of the cases of injury treated by amputation in the country, more die of simple shock in country practice than in large hospital practice.

XVI. Amputations of the thigh for disease arc more common in infirmary than in country practice; hut are thrce times more dangerous in hospital than in rural practice.

XVII. The causes of dcath after limh amputations differ in some important points in large hospitals, and in private country practice.

XVIII. The causes of death which Mr. Holmes points out as the reasons for the greater mortality of amputations in the Parisian as compared with the London hospitals, are in the samc causes that produco the greater mortality of amputations in our large British hospitals as compared with country practice.

We now think it well to introduce here the thirteen propositions Dr. Kennedy laid down at the famous Dublin debate, so as to bring out the matter more clearly and fully. We venture to submit a few comments upon them in the parallel right-hand column.

I. That puerperal metria is due to the absorption of a poison by the parturient female.

I. This generally expresses the received opinion, so far as the subject is at present known.

II. That this poison may be generated by any parturient female; and, where the circumstances are favourable to its imbibition, it may be absorbed into the system of the generator or that of any other parturient female exposed to its influence.

II. The only comment we should feel disposed to make on this proposition is, that much importance must here be attached to the word "may," and that the doctrine of chance must be coupled with it. It occurs once in about every 500 labours in England, therefore it is generated, and finds a fitting nidus. The proposition consequently is strictly true.

TABLE XXXI.—*Showing the Rate of Mortality per Thousand amongst the Inmates of the Dublin Lying-in Hospital, arranged according to the numbers of Inmates. (Dr. Matthews Duncan.)*

Women Delivered.	Rate of Mortality per Thousand.			Number of Years or Observations.	Mean Age of Hospitals.
	Lowest.	Average.	Highest.		
Less than 800	9·5	14·0	18·9	19	8
800 and under 1300	7·7	21·3	39·9	19	59
1300 ,, ,, 1800	7·8	13·9	22·5	24	57
1800 ,, ,, 2300	7·2	11·8	17·4	27	78
2300 ,, ,, 2800	6·6	14·5	19·1	14	61
2800 ,, ,, 3300	11·9	12·8	13·9	7	61
3300 and upwards	12·5	12·5	12·5	2	61

III. That the generation and absorption of this contagion is in a direct proportion to the number of parturient females cohabiting in a given

III. This proposition presents great difficulty as it stands, and this is partly due to the attempt to mathematically demonstrate a point of this kind. We are far, however, from denying that there is some truth in connection with the idea pervading it.

Facts are opposed to the statement as it stands, for—

1. If we take the case of large hospitals—no better can be taken than Dublin itself—we find direct proof that the opposite of this statement is the case. This may be illustrated in various ways. Dr. Duncan has given

number of feet of atmospheric space, at their parturient period, or who breathe the same atmosphere when lying in.

one method according to the annexed table: we insert Table XXXI. for the sake of brevity. In this table we see that when fewest were in hospital the mortality was as great as when there were three times the number sheltered within its walls. We subjoin another table, according to the masterships of the great Dublin

TABLE XXXII.—*Showing Mortality in Dublin Lying-in Hospital according to Masterships, every seven years.*

	Patients.	Deaths.	Death-rate.
1	3,975	45	1 in 88·33
2	3,013	42	,, 71·69
3	4,433	64	,, 69·26
4	5,139	62	,, 82·89
5	7,302	61	,, 119·70
6	10,042	111	,, 90·46
7	11,371	87	,, 130·70
8	12,747	156	,, 81·71
9	18,652	165	,, 113·04
10	21,552	304	,, 70·89
11	18,198	290	,, 62·70
12	16,391	158	,, 103·74
13	13,167	224	,, 58·79
14	13,699	179	,, 76·53
15	13,741	167	,, 82·28
16	9,181	229	,, 40·09
17*	7,786	265	,, 29·00
Total	190,389	2,609	1 in 72·97

* Two years more are included here, so as to embrace the full period.

Hospital. From this table one may easily perceive that the years wherein most patients were delivered in the hospital, were among those in its history with the smallest death-rate.

2. In so far as large and small hospitals are concerned. Here it will be enough to give the following table on the unquestionable authority of Dr. Churchill. Dr. Churchill's opinion is corroborated by Dr. Duncan, who gives Le Fort's data, Table XXXV. (p. 87). In fact, the position assumed in this proposition is untenable all round, and consequently we find Miss Nightingale concluding, on other grounds, that "from these facts Dr. Le Fort concludes the relative mortality in small and large establishments is not favourable to small, *per se*. The benefit of subdivision may be neutralised by other circumstances." And, again, the same shrewd lady

TABLE XXXIII. — *Showing Mortality in large Hospitals (Dr. Churchill).*

Hospitals.	Cases.	Deaths.	Death-rate.
Rotunda, Dr. J. Clarke	10,387	125	1 in 83
Rotunda, Dr. Collins	16,654	164	,, 101½
Rotunda, Drs. M'Clintock and Hardy	6,634	65	,, 102
Rotunda, Drs. Johnston and Sinclair	11,874	67	,, 177
Rotunda, Dr. E. Kennedy.....	13,167	224	,, 58
Maison d'Accouchements, Paris, 1862	2,204	166	,, 13½
St. Petersburg, 15 years	8,036	306	,, 26⅐
Madras, 1857 to 1859	2,135	39	,, 54
	71,091	1,156	1 in 62

TABLE XXXIV. — *Showing Mortality in small Hospitals (Dr. Churchill).*

Hospitals.	Cases.	Deaths.	Death-rate.
Dr. Beatty, 1834 to 1837	1,182	17	1 in 69½
Dr. Churchill, 1835 to 1839 ...	428	4	,, 107
Montreal Hospital	1,949	17	,, 114½
Waterford Hospital	3,409	15	,, 227
Edinburgh Hospital, 1844 to 1868	3,824	62	,, 61
Glasgow Hospital, 1857 to 1868	3,673	62	,, 59
New Ross (Dr. E. Kennedy)...			
London (York Road) Hospital, 24 years.....	924	5	,, 184
British Lying-in Hospital, 17 years	4,960	146	,, 34
	2,438	25	,, 87
Liverpool Hospital, 7 years ...	1,092	11	,, 99
Melbourne Hospital	3,421	41	,, 83½
Limerick	—	—	,, 367
	27,300	405	1 in 67

wisely adds: "Much has been written about the saving effect of small hospitals; but it is certain, from what has been already said, that the small hospital idea is not sufficient of itself. But we should certainly be disappointed if we trusted to smallness of size alone for reducing the mortality." There is no evidence whatever to show that the number of parturient

TABLE XXXV.—*Showing Death-rate according to size of Hospital (after Le Fort).**

Hospitals.	Cases.	Deaths.	Death-rate.	
			1 in	per 1,000.
Institutions receiving above 2,000 lying-in women	300,503	12,244	23	40·7
Institutions receiving annually from 1,000 to 2,000	39,885	1,444	27	36
Institutions receiving annually from 500 to 1,000.....	14,393	386	37	
Institutions receiving annually from 200 to 500	9,755	299	32	30·5
Institutions receiving annually from 100 to 200	4,558	126	36	27·6
Institutions receiving annually under 100.....	548	46	12	83·5

women cohabiting in a given space, the conditions being salubrious, engender metria in a direct proportion to the number. It is possible to conceive one or two parturient women producing an insalubrious state, which might account for the existence or spread of the contagion of metria.

On referring to Table XXXVI, page 88, we could hardly explain the metria mortality in the hospitals by the principle involved in the propositions. We doubt if those hospitals, in the table referred to, which allow most cubic space for the patients, individually or collectively, can show a proportionately small death-rate. Thus, for instance, we might find in one of these hospitals more cubic space allowed for each patient, and not many patients admitted in the course of the year, and yet a high mortality. The number and the space alone do not form the only criteria; but these two items are extremely important, and play a considerable part in maiutaining a salubrious state.

3. But if we compare hospitals with the records of the Registrar-General, as Dr. Kennedy does in his commentary on this proposition, we shall find that this proposition fails. Thus, if we take the results in any of the great lying-in hospitals, and compare them with the results in Table IV., we shall see that the spread of this poison is neither in the direct nor in the inverse ratio of the number of parturient females cohabiting. To prove this, we have made the following table (XXXVI.). We here see that, under Dr. Collins, there were more than 16,000 women delivered in the Rotunda, and he had

* See page 105.

TABLE XXXVI.—*Showing Mortality from Metria, &c., in Hospital.*

Place.	Cases.	Deaths.	Metria Mortality.	Proportion of Metria to Total Mortality.	Death-rate from Metria.	Death-rate from Non-puerperal Causes.	Total Death-rate.
Rotunda, Dr. Collins.	16,654	164	56	1 in 3	1 in 297	1 in 154	1 in 101
Do. Drs. M'Clintock & Hardy	6,634	65	31	,, 2	,, 214	,, 195	,, 102
Do. Drs. Johnston & Sinclair	11,874	67	41	,, 1·6	,, 289½	,, 456	,, 177
Do. Dr. Kennedy	13,167	224	117	,, 1·6	,, 112	,, 123	,, 58
Dr. Beatty	1,182	17	11	,, 1·5	,, 107½	,, 197	,, 69
Dr. Churchill	428	4	2	,, 2	,, 214	,, 214	,, 107
Montreal Hospital ...	1,949	17	5	,, 3·4	,, 389	,, 162	,, 114
Waterford ,, ...	3,409	15	5	,, 3	,, 681	,, 341	,, 227
Coombe ,, ...	6,776	89	55	,, 1·6	,, 123	,, 202	,, 75
Total	62,073	662	323	1 in 2	1 in 192	1 in 188	1 in 93

The death-rate in this table is low for hospital data; of course it is selected on account of the metria mortality being known. If metria mortality bore the same proportion here as out of hospital, we should have a total death-rate of 1 in 138 instead of 1 in 93.

only a metria mortality of one in 297 (*i.e.*, the same metria mortality which occurs on an average in workhouses), whereas in Dr. Beatty's hospital the aggregate number of women was nearly sixteen times less, and the metria mortality was one in 107.

Again, Drs. M'Clintock and Hardy had a metria mortality of one in 214 with 6,634, and Dr. Churchill had the same with only 428.

Dr. Kennedy had (1 in 112) almost the same rate of metria mortality as in the Coombe Hospital, and yet he had twice as many patients. By looking at the column showing proportion of metria to total mortality, it will be easily seen that no such rule will apply as that attempted.

4. Lastly, if we look at the density or proximity of the population, we find this proposition equally breaks down. See Table IV. We find from this that the

metria mortality equals, in North Wales, the mortality of metria and childbirth together, not only of London, but also of England. In North Wales one in every 238 women delivered dies from metria, while in London (which includes even the lying-in hospitals) only one in 476 dies from metria.

But if this proposition fails in stating the facts of the case, notwithstanding that Dr. Kennedy calls it his Redan proposition, we cannot go the length that Dr. Duncan does in saying, "with the fall of his Redan proposition fall all his conclusions regarding puerperal fever and the advantages of small hospitals." We affirm that there is truth in the idea underlying the proposition, but through an attempt to be too concise and short in generalising, much harm has resulted to a great cause. Dr. Kennedy's opponents frankly admit that metria is more frequent in lying-in hospitals than outside them. The ratio in any sense that it can be taken is relatively greater, no matter whether we reckon it with the total mortality, or the number of women delivered—a similar result will be obtained. Metria is far more prevalent relatively in hospital than out of it. It will be seen by comparing the table with the following table (XXXVII., page 90) that this statement is correct. In the latter table the metria mortality is not much more than half the death-rate from accidents; it is one-third that from metria and accidents of childbirth taken together; and if we add to the latter a fourth more, which Dr. Duncan and Dr. M'Clintock say is fair as representing non-puerperal deaths, then metria bears a still less proportion to all other deaths out of hospital as compared to those in hospital. There is here incontrovertible proof of the undeniable fact, so far as can be ascertained, that metria is more frequent in hospital than in home practice. Statistics thus unquestionably confirm the generally received opinion of this greater prevalence of metria in than out of hospital. Dr. Duncan affirms that metria is the chief source of variation in the death-rate. Dr. M'Clintock, with great clearness, says:—"Hospital statistics are excluded because the great excess of metria cases in hospitals would necessarily disqualify them from showing the proportion that deaths from non-puerperal diseases bear to all other deaths in childbed among patients out of hospital."

Equally to the point is the prudent observation of

TABLE XXXVII.—*Showing Estimated Childbirth Mortality and Mortality from Metria, &c., in England, for 31 years, 1847–77.*

No. of Births.	Deaths from Accidents of Childbirth.	Deaths from Metria.	Deaths from Metria and Childbirth.	Estimated total Deaths in Childbed, ¼ added to Metria & Childbirth.	Death-rate of Metria & Childbirth.	Total Death-rate.	Proportion of Metria to Metria and Childbirth.	Proportion of Metria to Total Deaths in Childbed.
22,181,195	70,240	39,768	110,008	137,510	1 in 200	1 in 161	1 in 2·76	1 in 3·46

Dr. Kidd:—"He believed it was impossible to collect a number of (lying-in) patients under one roof, and yet not to have an hospital atmosphere, and that atmosphere more or less injurious." Could any better or fairer reason be given for what, no doubt, does exist? This admission is the point where unanimity ought to prevail all round; it is the starting-point of the whole. To what extent do the tables just given explain the difference between the mortality in and that out of hospital? Supposing the ratio in the tables to be correct, it would bring the death-rate in hospital from 1 in 69 to about 1 in 110. The excess in hospital of the mortality from accidents of childbirth amounts to nearly 25 per cent. over the non-puerperal mortality (or accidents) in home practice.

We take this, then, to be admitted.

We do not think it at all necessary for our purpose to prove that metria is a constant quantity in hospital,

and an occasional quantity in the houses of the affluent. There are great truths that do not admit of mathematical demonstration, and to apply this mathematical test in such a case as that before us, would be to strain it—indeed the test is inadmissible. All admit that the disease is extremely capricious—appearing, disappearing, and reappearing in an unaccountable and mysterious fashion, there occurring long periods of freedom from it under apparently the same conditions as those which accompany its appearance, and this as well in private practice as in hospital practice; though of course, as we have already said, it appears more frequently in the latter than the former. We might equally well affirm that metria is a constant quantity in North Wales, because it occurs there to double the extent that it does in London. But what is to be gained from this?

Following up this statement, that metria is more frequent among parturient women in our lying-in hospitals than out of them, we look again at the proposition, and affirm that, as metria is contagious, and affects lying-in women, there is every probability,—nay, shall we not say certainty?—that its prevalence in lying-in hospitals is accounted for by the fact, that so many parturient women cohabit and live together, generating, absorbing, or spreading the contagion of metria, and are thus exposed to the chances of being attacked by it, or the poison generated attacking those susceptible within its reach. Hence the reason of Dr. Kennedy's plea for isolation of all parturient women, so that they may not be exposed to the chance of being affected with metria. This would lessen the heterogenetic causes, which are more frequent by far than the autogenetic. See page 50.

IV. That in lying-in hospitals, where large numbers of patients are delivered under the same roof, this disease finds its habitat, appearing and

IV. We think the wording of this proposition is apt to mislead. We prefer to say that in lying-in hospitals there is more metria prevalent than outside these hospitals, but that in these institutions it is as capricious in its appearance and disappearance as in home practice. We think when the word "habitat" is applied, as in the proposition, it is fair to consider that it is liable to be used in an ambiguous sense. We think it is far from being proved that metria has a special "habitat" in hospitals.

From the tables in the report of the Registrar-General we see that metria has a habitat throughout the whole country.

We may be pardoned for referring here to large

reappearing at uncertain intervals.

hospitals abroad. In the University Hospital at Vienna there are more than 1,000 beds set apart for lying-in purposes alone. This department is under Prof. Karl Braun, Prof. Späth, and Prof. Gustav Braun. Our information is from two independent and reliable sources. Medical students are freely admitted to the departments under Karl Braun and Späth, the third is reserved entirely for midwives and female pupils. There are 3,549 women on an average annually delivered in the third department, and there were only 16 deaths, *i.e.*, 1 in 221. There are more than 10,000 women annually confined in this hospital, and we are informed the death-rate is about 3 or 4 per 1,000. Under Prof. Bischoff in Basel students are not admitted to the wards — the death-rate is 1 in 300, and latterly 300 deliveries without a death. At Dresden and Copenhagen the mortality in hospital is a shade smaller than that of private practice. The results in Stuttgart are also good. But, of course, this is merely of late years, since greater care has been exercised. Under proper precautions these facts show that the proposition is not borne out. At the same time, if proper care be not exercised, there must always be more metria carrying off patients in than out of hospital.

V. That its appearance, although apparently capricious, is not infrequently traceable to the occurrence of other zymotic diseases, to a general unhealthy state of the hospital, the labours for some time being succeeded by bad recoveries, before the true zymotic metria exhibits itself.

V. To this there can be little objection; it is a simple observation, and does not involve any material question of doctrine, other than the profession has long entertained on contagious diseases. (See page 138.)

VI. That it may be produced by contagion, long experience proves, following the steps of certain practitioners, whilst others are totally free from it, and that in the same locality.

VI. This expresses generally the received opinion. We think beyond all doubt puerperal fever is contagious. We know of nothing that so well expresses the necessary precautions as the description given by Professor Leishman in his System of Midwifery:—"The treatment of puerperal fever varies according to the class to which each case belongs. If, however, we take what is at once the most simple and comprehensive view of this part of our subject, we shall find that the symptoms and morbid appearances seem to reveal the fact that we have a single disease to treat—whatever we may choose to call it—and that our treatment will only be modified by the stage of the disease, the nature of the symptoms, and the character of the complications which may arise. Nothing can well be imagined more absurd, and nothing, in fact, has been more disastrous in its results, than to manage all cases of puerperal fever upon one and the same principle. One feature, indeed, is common to all cases, and consists in the contagious nature of the disease. This is the leading idea, which, more than anything else, we would again impress upon the student with all the emphasis at our command. Whether the case be one of peritonitis, metritis, or malignant puerperal fever, the risk of contagion must always be borne in mind; and although we must admit that the danger is much less in, for example, simple peritonitis, we can never be sure that it is absent, and therefore we should treat every case, without exception, as if its contagious nature were already demonstrated. It is true that disease germs have never been seen or traced through the air; but practice, founded on this belief, has, in the hands of Lister and his pupils, been attended with brilliant results. Is it too much to hope that one day, by a process of antiseptic delivery, the fearful danger of this poison may, even in hospital practice, be reduced within the narrow bounds, to the benefit of humanity, and the lasting credit of modern science?"

VII. It is endemic — confined in its occurrence to certain localities.

VII. The endemic nature of metria is undeniable, but much of the so-called evidence on this point is proved to be utterly worthless. We think, for instance, that Dr. Duncan has proved, beyond doubt, in his 10th chapter, that there is no truth in the supposition that new hospitals are more healthy than old ones because they are new. At the same time, it would be absurd to deny, on the other hand, that, under certain given circumstances, newness does not possess advantages over oldness. Clearly we must have regard to the condition of repair of

the old building, as well as its structure, and also the uses to which it has been put, to come to a satisfactory conclusion respecting this matter. It requires no great ingenuity, or subtle reasoning, or genius, to perceive that a new hospital is better than an old one, that has been used for patients having contagious complaints: when the pores and material of which it is constructed are saturated with contagious matter. But, given a certain impervious material, which has been properly kept, then an old hospital is as good as a new one, except so far as modern improvements are concerned.

VIII. It is not only confined in its occurrence to a given hospital, but it is observed to haunt certain wards of the hospital, and this to such a degree that I have been obliged to close up for many months wards in which it established its special habitat.

VIII. There is truth in this proposition, but it is difficult to sift and make the evidence as conclusive and clear as could be wished. Surgeons have been long accustomed to have regard to something such as is here indicated, and there is no reason to doubt the impression imprinted upon the mind of the ex-master of the Dublin Hospital.

Can anything neutralise morbific influences which "haunt certain wards"? On the authority of Mr. Callendar of St. Bartholomew's Hospital, we are informed that "Surgeons have learned to banish, for all practical purposes, those affections which may be termed septicœmic from surgical wards of hospitals."

So we must hope that care will banish in the same sense puerperal septicœmia from our lying-in hospitals. Call it by what name you please, care is the secret whichever system you adopt. How admirable is the observation Dr. Duncan made—"already," he stated, "more pain is prevented and more life is saved by antiseptic methods than by all the recent combined improvements of midwifery, great though these are; and there is no prospect of preventing pain or saving life, half so bright and encouraging as that from the extension and diffusion of them."

Dr. Duncan, in the same paper, on "Antiseptic Midwifery," in the *Brit. Med. Journ.* of Feb. 15 and Feb. 22, 1879, in which will be found the views affecting the practical side of this question, states:

"Antiseptic prophylaxis, in ordinary confinements, against danger from without, has now been extensively carried on, and with results which excite the enthusiastic admiration of all who have fairly tried them, whether in hospital or in private practice. The details of the method vary, some practitioners using more, some fewer, precautions. They are the same for hospital as for private practice. Similar care is now extensively taken against infection in surgical hospital wards. It may be described as a transcendental disinfecting cleanliness; and its results in surgical hospitals, when Listerian methods are not adopted, have been extremely satisfactory; so much so, indeed, as to lead some to doubt the necessity for Listerian exactness. This great success is probably best illustrated in the healthiness now prevailing in many of the great continental hospitals, such as those of Copenhagen and Munich; and in these are to be seen, not

So much for our positive propositions. Now for the negative; and whilst we freely admit that negative evidence is less valuable, we look upon it that here it is essential to

complete the chain of reasoning.

only the generally good results of antiseptic cleanliness, but also those special surgical cures which, without the Listerian method, would neither be attempted nor produced."

And again—

"In maternity hospitals, antiseptics have proved of decided value, rendering healthy what were previously unhealthy, reducing the mortality of the lying-in from exaggerated amounts to a level with, or even below, that of private practice. In a general way, this may be stated as the result of preventing communication of disease directly or indirectly from one patient to another; for this use of antiseptics cannot obviate the occurrence of what are called autogenetic cases. Although the antiseptic cases in a hospital are the same as in private practice, many details are different or additional, such as the removal of the infected from the healthy, and the isolation of the nurse as well as of the patient."

IX. Zymotic metria is not a disease peculiar to parturient women confined in their own homes, occurring comparatively rarely among them.

IX. This proposition is one which has been most disputed. On the most careful inquiry into the subject, in all its bearings, we cannot go quite so far as this. The voice of the profession pronounces that it is untrue. What says the Registrar-General? See Tables IV., XXXVIII., and XXXIX.

But let us turn to Table XXVIII., p. 70, and we shall there find a metria mortality from women delivered at their own homes of 1 in 113, and a total mortality of 1 in 77, nearly the same as the Rotunda Hospital. And although this is the mortality for one year, yet the report states that it is a favourable year. Of course the probability is that more deaths occurred. We are unwilling to go abroad, because we cannot rely so well upon the statistics, or at least know whether the data are exactly comparable. We have just seen (p. 92) that the mortality at Dresden and Copenhagen is lower in hospital than outside. On the authority of Stadfeldt, the mortality in Copenhagen **from puerperal fever alone** was 1 in 123 where **midwives** attended the women at their own homes. The figures are 108,737 deliveries, and 885 deaths, or 1 in 123 from puerperal fever. This is for a series of twenty years.

X. It is therefore not a disease observed to prevail in small lying-in hospitals or cottages where only one or two patients cohabit in their lying-in.

X. It occurs in small hospitals in almost as great a ratio as in large ones. See Tables XXXIII., XXXIV., and XXXVI.; also pp. 84–6.

It prevails in solitary abodes to **twice** the extent, *e.g.*, in North Wales, that it does over all England put together. It is almost as bad in Cumberland as North Wales.

TABLE XXXVIII.—*Showing Metria Mortality in North Wales and Cumberland.*

	No. of Cases.	Deaths from Metria and Childbirth.	Metria Mortality.	Metria Mortality.		Metria and Childbirth.	Childbirth Mortality.	
				Death rate.	Per 1000	Death-rate.	Death rate.	Per 1000
N. Wales ...	1,4,394	127	60	1 in 236	4·2	1 in 113	1 in 215	4·6
Cumberland	8,324	50	29	,, 287	3·5	,, 166	,, 396	2·5

XI. The just and inevitable conclusion from the foregoing propositions is that by continuing the system of large lying-in hospitals we are causing the death, by zymotic metria, of a number of patients for one that would occur under any system that would secure the separation or isolation of women in their confinements.

XI. We have proved that the propositions are not true, and therefore this is not a logical conclusion or sequence to them at all; it may or may not be a fact by itself; it must stand on its own footing.

We have seen by Table XXXVI. preceding, that separation of patients will not stop metria. In North Wales the proportion of metria to the accidents of childbirth is greater that it is in London, and almost double in amount. The figures stand thus:—

TABLE XXXIX. — *Deaths of Metria to* 1,000 *Children born alive.*

	Metria and Childbirth.	Metria.	Accidents of Childbirth.
London	4·6	2·1	2·5
North Wales	8·8	4·2	4·6

We have seen that one in 236 die from metria in North Wales, and we have seen that Dr. Collins had only a mortality from metria in the Rotunda Hospital of one in 297, Drs. M'Clintock and Hardy one in 214, Drs. Johnston and Sinclair one in 289.

Still there can be no doubt that the proposition in the main embodies a truth that more women relatively die from metria in hospitals than out of them. Whether it is correct to say the system of "large" lying-in hospitals or not is another question. For our part, we think the largest hospital we have (Dublin Rotunda) the best. Relatively fewer women have died there from metria than in our four metropolitan lying-in hospitals, where it has been considered, from information obtained at the office of the Registrar-General, that the metria mortality of late years has been about 25 per 1,000. (See p. 107.)

The proportion of metria to total deaths is greater in hospitals than out of them. The proportion of accidents of childbirth to total deaths is greater out of hospitals than in them—if we add to this the deaths from non-puerperal diseases, the difference is still more marked.

XII. But as hospitals possess advantages facilitating the cure of patients and as schools

XII. This proposition certainly is paradoxical, as following XI., where it is attempted to establish the fact that hospitals kill (inadvertently, of course) the patients. See pp. 169, 170. How come they to cure? We should certainly prefer this to have been stated differently.

As a fact, lying-in hospitals clearly have a higher maternal death-rate than occurs outside them. Metria

of instruction, it is quite possible to combine these advantages with those of the separate system by means of grouped but isolated cottage or pavilion hospitals, with only one, or, at most, two beds in each isolated room.

XIII. That consequently, with our present knowledge of puerperal fever, the conclusion is inevitable that the mortality among parturient women would be greatly lessened by an alteration in the construction and arrangement of lying-in hospitals.

is the chief cause of this excessive mortality. This we may see in Tables XXXVI., XXXVII., between metria in, as compared with metria out of hospital; the difference bringing the mortality from one in 69 to one in 110 in hospital, if freed from the excess of metria.

In hospital the metria deaths nearly equal (often exceed, p. 62) the deaths from all other causes, whereas out of hospital metria deaths are not much over half of the deaths from the accidents of childbirth, and not one-third of all childbed deaths taken together (see pp. 88, 90).

And as hospitals are indispensable, and as metria is a communicable disease, it is, no doubt, better—indeed, the only justifiable and safe means—to have a school upon the isolation principle.

The hospitals would not only benefit the destitute directly, but they would indirectly, as schools of instruction, benefit all child-bearing women. Our knowledge of every practical branch of medicine must be obtained by clinical demonstration and observation, and in no department is it more needed than in obstetrics, where, as we have already seen, prompt interference averts or remedies great evils. The present system, to wit, attending a few cases at the homes of the poor, is inefficient. (See pp. 183-189.)

XIII. Of the propriety of some change there is little room for doubt. The views of the majority in and out of the profession are veering round to this point, so much so that these invaluable institutions are threatened on all hands, unless something is done, on account of their high death-rate. The matter resolves itself, therefore, into one of expediency. Indeed, enlightened men in and out of the profession have acknowledged that something must be done in this direction sooner or later. Reform in sanitary and constructive arrangements must be effected. Paris already has set us an example in this particular. Prof. Tarnier has a little model hospital close to the "Mde. La Chappelle," where the separation has been complete. There are eight beds; it has been in existence for some years; and we understand there has been no death from metria. Is London to do nothing? Commercial wealth, political freedom, and education, ought to enable the inhabitants of Great Britain to set an example in this respect. The public hospitals of any country may fairly be taken as a standard of knowledge or civilization amongst a people.

RECAPITULATION.

In summing up the evidence regarding the mortality in lying-in institutions and its causes, we cannot follow a better example than that laid before us by Miss Nightingale, whose conclusions we give in the left-hand column. In the right-hand column we offer such alterations, modifications, suggestions, or additions as we feel justified in doing and consider expedient upon Miss Nightingale's deductions, which we think approach nearer our own views than those of any one else upon this question, and we cannot show our appreciation of their value more than by quoting them *in extenso*.

(Summary by Miss Nightingale.)

1. That, making every allowance for unavoidable inaccuracies in statistics of midwifery practice, there is sufficient evidence to show that in lying-in wards there reigns a death-rate many times the amount of that which takes place in home deliveries.

1. That, making every allowance for unavoidable inaccuracies in statistics of midwifery practice, there is sufficient evidence to show that in lying-in wards there reigns a death-rate **higher** than that which takes place in home deliveries. See Tables XXXVI. and XXXVII. (pp. 88, 89), and that annexed ; also XLI. (p. 105).

TABLE XL.—*Mortality in Chief Lying-in Hospitals of Great Britain and Ireland.*

Lying-in Hospital.	Deliveries	Deaths.	Death-rate.	Death-rate. Metropolitan.	Death-rate. British.	Death-rate. United Kingdom, exclusive of Rotunda.
London.—Queen Charlotte, 1828-68	9,626	244	1 in 39	1 in 45	1 in 49	1 in 53
,, British ... 1858-68	1,741	25	,, 70			
,, City of London 1859-68	4,966	54	,, 92			
,, York Road ... 24 yrs.	4,960	146	,, 34			
Liverpool Hospital ... 7 yrs.	1,092	11	,, 99			
Edinburgh ,, ... 1844-68	3,824	62	,, 61			
Glasgow ,, ... 1857-68	3,673	62	,, 59			
Dublin, Coombe Hospital 1854-68	6,776	89	,, 73			
,, Rotunda ... 130 yrs.	190,389	2,609	,, 73			
TOTALS ...	227,047	3,302	1 in 69			

If metria mortality were the same **in** as **out** of hospital the death-rate here would be 1 in 110. The deaths from other causes are 25 per cent. more **in** than **out** of hospital.

2. That a great cause of mortality in these establishments is "blood-poisoning," and that this arises from the greater susceptibility of lying-in women to diseases connected with this cause; from whence it follows that in many lying-in wards, as at present arranged and managed, there must be conditions and circumstances, apart from those belonging to the inmates personally, which aid in the development of this morbid state.

3. That the risks to which lying-in women are exposed from puerperal diseases are increased by crowding cases in all stages

2. That a great cause of this higher mortality in these establishments is so-called "blood-poisoning," developed by inefficient management, by want of the means to completely separate the patients (*i.e.*, bad arrangements and construction). But there appears to be another and less-noticed cause for this higher mortality, namely, that as the accommodation—one bed for every 24,000 of population—is totally inadequate in London, difficult cases are sure to be sent or come into the hospital, a large proportion of whom must die, whether out of the hospital or in it (see pp. 107, 126). In addition to this, it will be universally admitted that the connection of an extern practice with an hospital increases the mortality of the latter, and diminishes that of the former, because whenever a case of real difficulty occurs—unnatural labour, from whatever cause (deformed pelvis, tumour, extra-uterine fœtation, hydrocephalic fœtus), requiring serious operations, and always involving great risk — it will be drafted into hospital. This is one of the great uses of an hospital.

It is in view of receiving operative cases which general practitioners occasionally refuse to attend, from causes and motives usually prudent and right enough, that Mr. Holmes's remarks are applicable and justifiable when he says something to the effect: "That a high death-rate indicates, as a rule, that an hospital fulfils efficiently the purposes for which it was designed, and that a low death-rate, on the other hand, indicates, *cæteris paribus*, comparative inefficiency." We have elsewhere shown that there is truth in this, and that it has been misapplied or misunderstood. We think the wording a little unfortunate; "as a rule" is rather too sweeping, or at all events, in our opinion, there is something too strong in the comparison—all hospitals try and save as many lives as possible. Facts and sound arguments might show that Mr. Holmes's principle is the **exception**, not the **rule**.

3. Taking this altogether, it is a conclusion which is justifiable, and expresses fairly the general opinion entertained upon the matter, founded upon the records of lying in hospitals in the past.

Nevertheless, we may state the following, which has some bearing upon the subject:—It is easily seen, from a cursory examination of the official returns, that the registration of births in Ireland (and deaths also) is not so exact or accurate as registration in England, yet it is clear, from an inspection of the

into the same room or under the same roof; by retaining them for too long a period in the same room; by using the same room for too long a period without cleansing, evacuation, rest, and thorough airing: but that the death-rate is not always in proportion to the number of lying-in cases which have passed through the hospital.

*It follows from this that, other things being equal, a high death-rate may take place in a small hospital constantly used up to its capacity, as well as in a large hospital constantly used up to its capacity.

4. That there are superadded data in Dublin, where every **fifth** woman delivered is confined in hospital, we do not find that the general puerperal mortality is higher on that account in Ireland than it is in England, or London, where every **ninety-eighth** woman only is delivered in hospital.

We, however, think it would be prudent to direct attention, in passing, to the conditions mentioned in this proposition :—"Crowding cases in all stages" and "too long a period." These are very indefinite limitations, and will admit of various constructions. All "crowding" is bad. But what is "crowding"? We know that **overcrowding** produces well-marked diseases. According to our present sanitary notions on this subject, a space of 2,000 cubic feet is enough for each individual to sustain a salubrious and healthy atmosphere under ordinary circumstances. We know that the dwellings of the poor cannot afford this amount of cubical air-space—many thousands of families (*i.e.*, six persons on an average) have not 2,000 cubic feet for the whole family together. (See p. 125.) If 2,000 cubic feet for each woman can be obtained in a hospital we cannot call it crowding; but if we put two lying-in women in the same space we certainly are entitled to call it by such a name, and in all probability the usual injurious results must follow.

The length of time required to elapse before cleansing the ward, furnishing, &c., as well as the time a patient is retained in a hospital, does not admit of the same precision and exactness. There are so many circumstances which regulate these matters. There can be no doubt that filth breeds disease and that cleanliness prevents it. Miss Nightingale describes the *Hôpital de la Clinique*, Paris, as follows :—"The wards devoted to women who have been delivered communicate freely with one another by open doors. The beds are curtained, and the curtains are washed only once in six months, even though the occupants of the bed may have died of puerperal fever." This is, of course, extreme laxity and carelessness; no wonder the recorded death-rate is an excessive one. We should advise each room and its furnishing to be **thoroughly** cleansed and aired after each labour. Regarding the time a patient may be retained in hospital, we should say that on an average 12 days will be enough.

* In connection with this see Dr. Kennedy's 3rd proposition, p. 84.

causes in some establishments which add greatly to their dangers. Among these may be reckoned the following:—

4. Doubtless the superadded causes are generally accountable for the excessive mortality complained of.

(*a*) Prevalence of puerperal fever as an epidemic outside the hospital.

(a.) Undoubtedly.

(*b*) Including midwifery wards within general hospitals, thereby incurring the risk of contaminating the air in midwifery wards with hospital emanations.

(b.) All admitted, yet there are exceptions abroad.

Dr. M'Clintock says: "I quite agree with all Dr. Kennedy has said in disapproval of lying-in wards being attached to general hospitals. Both theory and experience point out to us that such an arrangement is, in every way, open to the gravest objection."

Dr. Playfair states:—"Trousseau relates instances of this kind occurring in Paris. The only instance that I know of in London was in the lying-in ward of King's College Hospital, where, in spite of every hygienic precaution, the mortality was so great as to necessitate the closure of the ward. Here the association of erysipelas with puerperal septicæmia was again and again observed; the latter proving fatal in direct proportion to the prevalence of the former in the surgical wards."

(*c*) Proximity to midwifery wards of post-mortem theatres or other external sources of putrescence.

(c.) Quite natural; and so it would appear from what Miss Nightingale states was the experience of King's College Hospital:—"The main defects in the construction are: the back to back wards; proximity of these wards to the general wards of the hospital; the large staircase common to both sets of wards, although its size and openness, and the windows opposite each other and on each floor, ensured ventilation, and separated the respective blocks; the position of the post-mortem theatre, **the smell from which,** as stated on the best authority, **could be distinctly detected in the wards.**" (See pp. 151, 189.)

(*d*) Admitting medical students from general hos-

(d.) Experience at home, but especially abroad, tends to prove that this increases the mortality. But then no proper, or indeed any, precautions were taken, it would appear. We understand that now greater care is ob-

pitals, or from anatomical schools, to practise, or even to visit, in midwifery wards without special precautions for avoiding injury.

served in the schools abroad in which medical students are admitted, and with better results.

No doubt it is on account of the danger from this source that our metropolitan lying-in hospitals will not allow medical students to visit them, but their results are not so good as those of Edinburgh or the Dublin Rotunda, &c. What would be the result if students were admitted into our metropolitan lying-in hospitals it is not necessary, if it were possible, to forecast.

(*e*) Treating cases of puerperal disease in the same ward, or under the same roof with midwifery cases.

(*e*) This is beyond doubt. All who have large experience and entitled to judge and give an opinion are unanimous about the contagious nature of metria.

(*f*) Permitting the same attendants to act in infirmary wards and in lying-in wards, and using the same bedding, clothing, utensils, &c., in both.

(*f*) This ought never to be the case. But how often is this rule broken in the case of "monthly" nurses in private practice. When they are not engaged with a confinement case, they will take anything. A poor woman (and many nurses are very poor) must take what she can get. Within reasonable bounds, perhaps little objection may be taken, but we think a little more stringency than prevails at present advisable.

(*g*) Most probably, also—especially in certain foreign hospitals—want of scrupulous attention to ventilation, and to clean-

(*g*) This can be discovered nearer home than "foreign hospitals." We think another element is meddlesomeness, officiousness, not giving free course to nature, bothering the patient with too much manipulation, washing, dressing, &c., and thus not allowing the patient that rest which is more necessary than cleanliness even. The poor in their homes are not certainly over cleanly, yet they get on apparently better than the same class do in hospitals. The organs of generation ought to be allowed to remain quiescent, so that they may return to their natural state. Nature

liness in wards, bedding, clothing, utensils, and patients, and in the clothing and personal habits of attendants.

In short, the entire result of this enquiry may be summed up in a very few words, as follows :—

A woman, in ordinary health, and subject to the ordinary social conditions of her station, will not, if delivered at home, be exposed to *any special disadvantages likely to diminish materially her chance of recovery.* But this same woman, if received into an ordinary lying-in ward, together with others in the puerperal state, will, from that

will not be forced. The person recovers best and quickest, as a rule, when nature is allowed to have its own way in a natural process. Natural functions ought not to be interfered with.

The words we have italicised appear to us to overstate the case **slightly.** Excluding the risk from metria attending patients in hospital, there are evidently greater disadvantages at home than in hospital This could be illustrated easily, but we think it so evident that it is unnecessary. But, taking metria into account, the summary is perfectly true under certain given circumstances. The patient will be more exposed to the chances enumerated under the class hetero-genetic causes of metria when in hospital, but equally in or out of hospital to the auto-genetic causes.

To sum up, we say that for a great number of women—married and unmarried—from a variety of causes, lying-in hospitals possess enormous, invaluable and inestimable advantages over the wretched and miserable abodes of the poor, by their friendly shelter, their skilled assistance, and their efficient nursing—**a combination which cannot be secured elsewhere** If to this we add the necessity for operative help can it be anywhere so adequately found as in a well-appointed hospital? Are the chances not greatly against the person when a grave operation is performed in an unsuitable home—all the surroundings of which are inimical to recovery? Have lying-in hospitals no indirect use as schools of instruction? How many mothers throughout the whole country would be saved if facilities were afforded for acquiring the requisite knowledge of this branch!

very fact, become subject to risks not necessarily incident to this state. These risks in lying-in institutions may, no doubt, be materially diminished by providing proper hospital accommodation, and by care, common sense, and good management. And, hence the real, practical question is, whether it is possible to ensure at all times the observance of these conditions.

(*a*) Can any supposed advantages to individual cases of destitution counterbalance the enormous destruction of human life shown by the statistics?

(*b*) Without vouching for the entire accuracy of the statistical calculations by the esteemed authors cited. It would, however, be wrong to pass over the data which Le Fort obtained from 31 sources, and tabulated under 6 heads as on page 87, without comment. Miss Nightingale summarizes this in the following manner:—

A most important and necessary qualification to the immediately preceding generalization.—"These risks in lying-in institutions may, no doubt, be materially diminished by providing proper hospital accommodation, and by care, common sense, and good management." Therefore women need not be exposed necessarily to any very special disadvantages. Are there no advantages?

(*a*) The most important question raised. Experience in this country and in the different countries of Europe proves that we cannot dispense with lying-in hospitals. Dublin can show an experience of more than 130 years, and the several hospitals in London more than 100 years—each of them. Experience can point to the great need of enquiry into the causes of the death-rate in these institutions with a view to amelioration.

(*b*) Le Fort's data are faulty, and ought not to be taken alone for the settlement of this question. The issue is too tremendous, the slander too serious, the stigma too great, to draw conclusions, if there is a conditional feeling that the data of Le Fort are not vouched for or accepted, however near they may be to the truth.

We can appreciate and exactly understand the feeling Dr. M'Clintock had when he said:—

"Here I find myself—most reluctantly, I assure you—drifting into statistics, a subject I very much dislike, and very much distrust. For, although like the microscope it can reveal truth, yet, like that valuable aid to knowledge, it requires to be handled with caution, and its indications interpreted by one thoroughly trained and habituated to its use. I really believe there has been of late years no more abundant source of error in medicine, surgery, and hygiene, than the crude, narrow, or improper use of statistics."

But a sense of right and fair play compel us to have greater regard to an exposition of the truth than our own feelings, when invaluable and indispensable institutions are attacked or misrepresented. It is impossible to examine into the accuracy of all the statistical calculations by the esteemed authors cited. It would, however, be wrong to pass over the data which Le Fort obtained from 31 sources, and tabulated under 6 heads as on page 87, without comment. Miss Nightingale summarizes this in the following manner:—

1. "In hospitals receiving annually more than 2000 lying-in cases, comprising the two Cliniques of Vienna, 1834-63; the Maternités of Paris, 1849-59; of Prague, 1848-62; and of Moscow, 1853-62; and the Lying-in Hospital of Dublin, 1847-54, the death-rate is 40·7 per 1000."

racy of Le Fort's data, they may still be taken generally as showing approximately the penalty which is being paid for the supposed advantages of these institutions. It is this: for every two women who would die if delivered at home, fifteen must die if delivered in hospitals. Any reasonable deduction from this death-rate for supposed inaccuracy will not materially influence the result.

2. "In hospitals receiving between 1000 and 2000 cases a year, including the Enfans Trouvés, at Petersburg, 1845-59; the Maternité at Munich, 1859-62, and other places, the death-rate is 36 per 1000."
3. "In hospitals receiving from 500 to 1000 cases a year, including Pesth and the Maternité of Dresden, the death-rate is nearly 27 per 1000."
4. "In hospitals where the number of deliveries is between 200 and 500 per annum, comprehending several places cited, amongst the rest Edinburgh and the London Lying-in Hospital, 1833-60, the death-rate is 30½ per 1000."
5. "In hospitals receiving between 100 and 200 cases, as at Frankfort and Gottingen, the death-rate is 27·6 per 1000."
6. "And in three small establishments receiving fewer than 100 a year, as at Lun l, the death-rate is about 83½ per 1000."

We would note concerning series 1 and 6 preceding: 1st. The Dublin Rotunda ought not to be included in that series, for, by referring to page 60, it will be seen that it was only in 2 of the 8 years cited that the admissions reached 2,000.—The numbers were 15,444 deliveries in 8 years, of these 214 died, *i.e.*, 1 in 72, or 13·8 per 1,000. Such inaccuracies should not occur, they are misleading in so many ways.

With regard to series 6, the reader must refer to Table XVI., page 54, in order to perceive the true state of matters. Here we find Lund for 1 year with 4 cases and 2 deaths; St. Antoine, Paris, 28 cases in 5 years, and 5 deaths; ditto, 32 cases for 10 years, and 15 deaths; and St. Louis, Paris, 4 cases in 3 years, and no death.(!) In all 68 deliveries and 22 deaths. From this Le Fort draws the 6th series and pits it against the others. Can anything be more ridiculous or unsafe, 83½ per 1,000? without any qualification.

So far as we can ascertain from the data at present at our command, we conclude that the mortality of childbed is in the ratio given in the accompanying table.

TABLE XLI.—*Showing Comparative Rate of Mortality.*

Average Mortality in Civil Lying-in Hospitals in United Kingdom			= 1 in 69
,,	,,	Military ,, ,, ,,	= 1 ,, 107
,,	,,	Workhouses in United Kingdom	= 1 ,, 139
,,	,,	All England	= 1 ,, 169

The chief causes, as we have seen, for the high death-rate in hospital are: First—Metria, undoubtedly; Second—Inadequate Lying-in provision—reserving the hospital for difficult or unnatural labours, operative cases always involving serious risks.

CHAPTER III.

CONSTRUCTION OF LYING-IN HOSPITALS.

To effectually impress all with the seriousness of the issues involved in this great question, we cannot do better than insert the following leading article from one of the principal medical journals (*Lancet*, May 24, 1879), as an introduction to what we have to say on the subject of construction and management, which are accountable for some of the effects complained of:—

"Hospital treatment of puerperal women has received another severe discouragement from the recent catastrophe at the Queen Charlotte's Lying-in Hospital. Judging by past experience, however, there is too much reason to fear that the continued occurrence of such disasters will still be disregarded, and will fail to carry conviction to those who control the endowments and resources of the four principal lying-in hospitals.

"Since the beginning of this year the deaths of no less than eighteen women and twenty-six infants have been recorded in the Queen Charlotte's Lying-in Hospital; of these eleven women and twenty-one infants have died since the end of March. Most of the women died from puerperal fever, and the deaths of a large number of the infants were certified from erysipelas. The mortality of infants, as well as of mothers, almost invariably shows a marked excess in lying-in hospitals; but so distinct an epidemic of infantile erysipelas as that in the Queen Charlotte's Hospital is fortunately exceptional. Not so very long ago a similar epidemic of puerperal fever in the same hospital led to the closing of the institution. The hospital authorities did not then realise the grave responsibility they incurred by reopening it. Their tardy recognition of the serious character of the recent epidemic, moreover, calls for explanation. It is, however, satisfactory to learn that 'the causes of the outbreak are now under the consideration of a special committee, whose report will be issued shortly.' It may be hoped also that the request for an official investigation into the circumstances of

the epidemic, and the sanitary condition of the hospital, will meet with a prompt response.

"It is not, however, so much the circumstances of this particular epidemic that require investigation as the question whether the hospital treatment of puerperal women shall be longer permitted, except under the most rigid supervision, and the most stringent regulations. Since the beginning of 1876 the number of deliveries recorded in the five metropolitan hospitals that receive puerperal women has been 3,365, resulting in the deaths of 94 women, showing an average proportion of 28 deaths of mothers to 1,000 deliveries. The average proportion of deaths to deliveries in England and Wales in recent years would be less than 17 deaths, so that 77 (or 82 per cent.) of the 94 deaths of women in these five metropolitan lying-in hospitals since the beginning of 1876 have to be accounted for. Careful investigation should ascertain how many of these deaths were the result of difficult surgical cases, and how many inmates simply fell victims to the dangers apparently inseparable from the hospital treatment of puerperal women. The mortality of women in the Queen Charlotte's Hospital shows a marked excess during a long series of years; but exceptional fatality prevailed in 1873 and 1876, when 17 and 19 deaths of mothers were respectively recorded. We have before stated that 18 deaths of women have there been registered since the beginning of the year. The City of London and the General Lying-in Hospitals were both closed in the latter part of 1877 on account of excessive mortality of women. The British Lying-in Hospital showed no less than 10 deaths of mothers to 478 deliveries in the three years 1876-7-8, equal to a proportion of 21 per 1,000. Not only one, therefore, but each of these four metropolitan hospitals affords striking examples of the fatal effect of hospital treatment of puerperal women. It will, of course, be urged that lying-in hospitals are necessary for obstetric students and for the training of midwives. But, granting their convenience for such purposes, it becomes a grave question whether the result justifies the maintenance of the system at such a terrible cost of life. We have no hesitation in repeating that the reception of puerperal women in hospital should immediately be placed under control and inspection, and restricted within limits which would secure almost absolute immunity from recurrent epidemics of puerperal fever."

We have seen in the previous chapter that one disease—metria—is very fatal to lying-in women. We have seen that in 31 years 40,000 women in England have succumbed to it. We have seen that this disease is much

more common in lying-in hospitals than when women are confined out of them or at their own homes. Practical medicine directs its attention specially to preventive measures for saving life, as well as relief from pain and the cure of disease; and with the advance of science, obstetric surgery, and medicine, we hope still that greater safety to women in parturition may be effected. We have seen that all round the percentage of deaths from metria is, to say the least, rather increasing than decreasing. It is requisite, therefore, that something should be done, and we are not surprised that in the current literature of the day there is a wail coming forth beseeching eloquently the examination and the remedying of this state of matters.

We purpose in this chapter discussing the subject of construction, believing that it is of vital importance. We cannot do better than, in the first instance, quote the opinions of men of authority who have a right to be heard.

OPINION OF DR. FARR, IN THE REPORTS OF THE REGISTRAR-GENERAL, ON THE NUMBER OF METRIA DEATHS DUE TO INEFFICIENT ATTENDANCE.

"I have every year specially dwelt on the causes of death in childbirth for two reasons. Firstly, because the lives themselves are at the most precious age; and, secondly, because skill can do more here in averting danger and death than in other operations.

"Such deaths are followed year by year in Table XIV. (see p. 45), which shows that in 30 years (1847-76) no less than 106,565 mothers died in childbirth; that is, 5 to every 1,000 children—one to every 200 children—born alive. The proportions varied from year to year; 42 mothers died in 1857, and 69 in 1874, to every 10,000 children born alive, and these were the extreme limits. In the year 1876 the mortality of mothers was 47.

"This is a deep, dark, and continuous stream of mortality, How can it be accounted for? In the present state of obstetrical science a certain number of deaths from divers causes is inevitable. There are cases which foil the most consummate skill. Then there are difficult cases which defeat the ordinary practitioner, and the instructed midwife. But great numbers of midwives have never been instructed, and have never mastered their art so as to deal with intricate cases. In country villages from 30 to 90 per cent., in the small towns of 10,000 inhabit-

ants 5 to 10 per cent. of the cases are attended by midwives. Perhaps as large a proportion is attended by midwives in the large manufacturing towns as in the villages. In the east end of London also from 30 to 50 women in 100 delivered are attended by midwives; in the west end of London few.

"In answer to the question 'Are the women instructed in midwifery?' the Committee of the Society on Infant Mortality says: 'Answers in the negative have been received from all parts of the country, with the exception of Glasgow and Sheffield.' From 'several districts the replies indicate not merely a want of special education, but gross ignorance and incompetence, and a complete inability to contend with any difficulty that may occur.' The Committee notices that in London many women are practising who have received a certain amount of instruction at various institutions. Thus a very large number of the mothers are attended by midwives; some instructed in practice, others incompetent to deal with ordinary cases of difficulty. A large proportion of the mothers are attended by physicians, surgeons, and apothecaries; some at the head of their art in Europe, and others skilful or unskilful in various degrees. At the College of Surgeons the midwifery licence is a distinct qualification from that of membership; it is granted by the College under a clause in the charter of the 18th of March, 1852. The licence was conferred for the first time on the 1st of December, 1852. There is no examination in midwifery for the membership. The midwifery examinations, the nature of which is published by the College, are still in abeyance, arising out of the difficulty in obtaining examiners. Thus a registered M.R.C.S., without any other qualification, has passed no examination in midwifery. Many are in large and successful midwifery practice; others, it is to be feared, must labour under disqualifications disadvantageous to themselves and their patients.

"Under this state of things four thousand six hundred and ten mothers died in childbirth annually in the five years 1872-6. What number of these lost lives, have we any reason to believe, would have been saved had all been watched over by skilful midwives acting under skilful physicians?"

OPINION OF SIR JAMES SIMPSON, BART.

Construction and Arrangement.—"Perhaps one of the most weighty and momentous questions to which, at the present day, the

physician, the surgeon, and the accoucheur can direct his attention, is the proper reconstruction and arrangement of our hospitals. The vast importance of the subject depends upon this point, that it involves the study and rectification of influences that seem at present to set utterly at defiance all the proudest advances of practical medicine."

Influence of Aggregation and Proximity.—"When two sick men are laid down in the same room, there is always a chance—slight in many cases it may be—of one of them deleteriously affecting in this way, by his exhalations, the bodily state of the other. When a sick or wounded patient is placed in a room or chamber by himself all such mischances from others are averted; and hence the advantages of perfect isolation of the sick. The danger, however, on the one hand, no doubt multiplies as the number of patients aggregated together is increased. In a ward of ten patients there is, *cæteris paribus*, a greater likelihood of harm than in a ward of two, and that specially on account of two reasons. For, first, they are all respiring the air mutually deteriorated by the whole number of sick; but, secondly, and chiefly, there is every chance that among this increased number of sick there may be one invalid, if not more, whose corporeal exhalations infect and pollute the air of the ward, and consequently the air breathed by the other sick inmates of the ward, in such a manner or in such a degree, as, when long inspired, to be specially and specifically dangerous to the health and constitution of one or others of the neighbouring patients. The hazard from this cause necessarily increases with the increased number of sick persons in a ward; and, consequently, also in an hospital under one roof, and whose wards all more or less intercommunicate by passages, corridors, &c.; for the hospital comes in this case to be, as far as the intermixture of its whole atmosphere is concerned, only one enormous and gigantic chamber. . . The effect of special vitiations of the air mutually produced by different patients has not, of course, it must be further observed, necessarily the same influence upon all. The effects of these and other etiological poisons vary with the susceptibility and state of predisposition of those who are subjected to them. An atmosphere full of typhus poison does not by any means strike down all that breathe it. Nor does exposure to air full of malarial poison produce ague in all exposed to it; and, again, occasionally when it causes ague to some, it creates—according to their condition of predisposition—dysentery in some, sickness and headache in others, &c. What special varieties or forms of hospital poison produce, when inhaled,

pyæmia, has not yet been fully established in surgical science; nor are we at all aware of the special predispositions in patients which enable these poisons to develop the disease. The inquiry is one full of moment, both in itself, and in reference to the occasional though far rarer appearance of pyæmia in private as well as in hospital practice."

The new Lying-in Hospital in Edinburgh.—We cannot pass from the interesting opinions of so great a man without referring to the Lying-in Hospital erected to his memory by his fellow-citizens—a most fitting tribute to one who has done so much for this particular branch of the profession. Those who have read his works are familiar with the principles he so earnestly advocated in his later years, trying to inculcate the necessity of changing the construction of our hospitals generally, but more particularly of our lying-in hospitals. On cursorily examining his writings you are convinced at once of the fact that he had, even early in life, very pronounced views as to what a Lying-in Hospital ought to be.

How comes it then that his friends have allowed to be erected to his memory an institution which he would have described as "a bane instead of a blessing"? "Then thought I to understand this; but it was too hard for me." Yet we are far from saying that good results may not be obtained in the system adopted; at the same time we consider, judging the matter in the light of modern experience, the principle of isolation preferable in itself, and surely it would have been more appropriate to have erected a memorial hospital which would at once put into practice the theories of the illustrious obstetrician.

OPINION OF DR. MATTHEWS DUNCAN.

Present Hospitals Imperfect.—"All hospitals which I have seen are very imperfect. . . . Metria, I admit, is fostered by bad arrangements. . . . I can find no ground for the awful suspicion that well-managed hospitals have caused a large unnecessary or avoidable mortality, or developed diseases previously unheard of. (True, but what of the hospitals not well-managed, and that is the question quite as much as the other?) . . . They (the Dublin Accoucheurs) are almost unanimous in resisting the popular opinion regarding maternity hospitals. They wish their great lying-in hospital improved, not destroyed. They lament the frequent prevalence in it of puerperal fever,

"Le Fort, then, has shown, that in a great collection of hospitals there has been a mortality in childbed of 1 in 29, a fearful, and I believe, a true statement; enough to condemn them in mass. Among the data of hospitals we find such mortalities as 1 in 7, 1 in 15, 1 in 18, 1 in 21, and so on—an awful tale. When mortality like any above given is known, there can be nothing of condemnation too strong; there can be no slander. The truth is too hideous for any attempt at defence. . . . They (figures) should not diminish the zeal of all loyal physicians to introduce and carry out many needed improvements in them."

OPINION OF DR. KIDD, OF DUBLIN.

Hospitalism. Isolation of Healthy, Isolation of Sick.—"He believed it was impossible to collect a number of patients under one roof and yet not to have a hospital atmosphere, and that atmosphere more or less injurious.

"When he spoke of isolating the patients, he meant it literally, by having a separate ward for each patient. The plan had been tried in the Hospital of St. Petersburg, which in 1852 had been reformed by the Grand Duchess of Helena. It was increased by the erection of a new wing of the figure of the letter ⌊ on the corridor plan. Opening off the corridor were a number of small wards in which the patients were placed." (We do not think the conception of isolation was here fully perceived—certainly there could not be complete separation, seeing that there was a common corridor communicating with the different parts of the building. See p. 115, and plan of cottages for complete isolation.)

"There remained another expedient, and that was to isolate their sick patients, and that was the plan they were about to adopt."

OPINION OF DR. CHURCHILL.

Hospitals and Maternities.—"After these preliminary remarks, I come now to the question of the comparative safety, and therefore utility, of out-door maternities, small lying-in hospitals, and large hospitals, and I feel that each step ought to be taken with great care and caution.

"For solving this problem we are entirely at the mercy of statistics; and without undervaluing them—few have made more extensive use of them—I feel that they may easily be taken for more than they are worth.

"I have no doubt of the utility of maternities. They meet the wants of a large class of the poor to whom, for moral and social reasons, removal from their families would be a serious injury; and also of a class somewhat above the very poor. But for the latter, destitute of all comfort, and food, and fresh air, and proper nursing, a hospital is surely a great and valuable refuge, unless, in addition to professional attendance, we could undertake to provide all other necessaries."

Construction of Hospitals important to the Poor.—"It may be a question whether, if we had no hospitals, it might not be more beneficial to the poor to provide small parochial hospitals rather than one large one, and for one special reason, viz., that, in the event of puerperal fever making its appearance, the hospital can be closed with less inconvenience."

OPINION OF DR. M'CLINTOCK, OF DUBLIN.

Construction of General Hospitals prejudicial to Parturient Women.—"I quite agree with all Dr. Kennedy has said in disapproval of lying-in wards being attached to general hospitals. Both theory and experience point out to us that such an arrangement is in every way open to the gravest objection . . . But, whilst I readily concede the greater mortality amongst women confined in these institutions, as compared with the aggregate of women confined in their own homes, still I am of opinion that this difference has been greatly exaggerated, that it is only *in part* attributable to hospital influence."

Influence of Construction when there are Epidemics of Metria.—"At the same time I agree entirely with Dr. Kennedy, that when an epidemic of puerperal fever invades a lying-in hospital, the intensity as well as the extent of its ravages will be proportionate to the number of patients in hospital at the time."

Metria cause of Excessive Mortality in Hospitals.—"Hospital statistics are excluded because the great excess of metria cases in hospitals would necessarily disqualify them from showing the proportion that deaths from non-puerperal diseases bear to all other deaths in childbed among patients out of hospital."

OPINION OF DR. RINGLAND (LATE PRESIDENT OF DUBLIN OBSTETRICAL SOCIETY).

Respective Value of Maternities and Lying-in Hospitals; both are useful and necessary.—"I may here, perhaps, be permitted, parenthetically, to express my opinion on the relative value of the two respective systems—the extern and intern treatment of midwifery cases. Each, in my opinion, has its advantages and its disadvantages, each its merits and demerits. In the one a life may be casually lost through the medium of contagion—ten in eight years, as a maximum, as already shown in the Coombe Lying-in Hospital—but many lives are saved through its intervention, which in all probability would have been lost outside, owing to the want of proper treatment, constant care, and suitable nourishment; and in the other, the anxieties resulting from absence from home, the thought of a husband neglected and children uncared for, retards convalescence and militates against recovery. In fine, one is of incalculable value to some claimants for relief, to many the other alone is available. These considerations, and an experience of both systems for more than a quarter of a century, have led me to the conviction that each is a necessity, and that the union of the two in the one institution is the only arrangement compatible with the exigencies of our metropolitan population. Such is the arrangement now for a considerable time carried on in the Dublin Lying-in Hospital, and such has ever been, since its foundation, that of the Coombe Lying-in Hospital."

OPINION OF DR. PRIESTLEY.

Importance of Isolation.—"Secure her (the lying-in woman) isolation from all contagion from without.

"To secure the isolation of a lying-in woman from noxious influences which may be communicated to her from without may be difficult, and, in some cases, perhaps, impossible . . . I cannot help thinking that the accoucheur will in time succeed in preventing the like affections (*septicemic*) in puerperal women, so far, at least, as the heterogenetic cases are concerned."

OPINION OF DR. KENNEDY, OF DUBLIN.

Metria Mortality due to Defective Construction.—"But let it not be supposed that we look upon the result of lying-in hospital practice in this city as the most fatal to be found; on the contrary, it is one of the least fatal of the great lying-in hospitals throughout Europe, showing that

not to the want of skill and talent is due the fearful mortality upon which we dwell, but to an inherent defect of the gravest character in the system or construction of these institutions, and one that baffles human ingenuity to correct as long as they continue to be constructed upon their present vicious and faulty plan."

Importance of maintaining a Midwifery School on a sound Basis.—"But it will be asked would you absolutely shut up the hospital, and destroy our world-renowned school of midwifery in this city? By no means; I would establish the midwifery school upon a sound basis. I would take the lead, as Dublin has ever done, in this department of medicine, and correct the crying abuses that exist; abuses that may have been excusable when ignorant of them, but which are unpardonable alike in the eyes of God and man when dragged into the light of day. There is no difficulty whatever in the case of the Lying-in Hospital of Dublin in meeting the intentions of the founder by such an alteration of the present system as our increased knowledge of its vices suggests. The correction of these abuses will benefit the medical school of Dublin, and the obstetrical branch in particular."

Half measures doubly misleading.—"I sincerely deplore that he (Dr. Kidd) should be only *almost*, and not *altogether*, convinced of the necessity of complete isolation, for an error in this respect now will perpetuate this deplorable, and yet preventible, mortality, as, if the modified attempt at isolation, as recommended in the resolutions at the Paris conference in 1866, which he describes as about to be adopted in the Coombe Hospital, be carried out, it may help to delay the progress of this question for an indefinite period. That it may lessen the mortality is quite possible, but that it will prevent metria I do not anticipate; and whichever it does, if it leave the impression on the public mind, either that enough has been done in this experiment, or that nothing more need be attempted, as this has failed, then I am justified in saying that the change contemplated, by its failure or partial success, only perpetuates the mortality."

OPINION OF DR. W. S. PLAYFAIR.

Excess of Metria in Hospitals.—"Its prevalence in hospitals in which lying-in women are congregated has been constantly observed, both in this country and abroad, occasionally producing an apalling death-rate. The disease, when once it has appeared, frequently spread-

ing from one patient to another, in spite of all that could be done to arrest it. It would be easy to give many startling instances of this. Thus it prevailed in London in the years 1760, 1768, and 1770, to such an extent that in some lying-in institutions nearly all the patients died. Of the Edinburgh Infirmary in 1773 it is stated that 'almost every woman, as soon as she was delivered, or perhaps about twenty-four hours after, was seized with it, *and all of them died*, though every method was used to cure the disorder.' On the Continent, where the lying-in institutions are on a much larger scale, the mortality was equally great. Thus, in the Maison d'Accouchements of Paris, in a number of different years, sometimes as many as 1 in 3 of the women delivered died; on one occasion 10 women dying out of 15 delivered. Similar results were observed in other great Continental hospitals—as in Vienna, where, in 1853, 19 per cent. of the cases died, and in 1842 16 per cent.; and in Berlin, in 1862, hardly a single patient escaped, the hospital being eventually closed."

Excessive Mortality not enough to abolish Lying-in Hospitals.—"Such facts, the correctness of which is beyond any question, prove to demonstration the great risk which may accompany the aggregation of lying-in women. Whether they justify the conclusion that all lying-in hospitals should be abolished, is another and a very wide question, which can scarcely be satisfactorily discussed in a practical work. It is to be observed, however, that most of the cases in which the disease produced such disastrous results, occurred before our more recent knowledge of its mode of propagation was acquired, when no sufficient hygienic precautions were adopted, when ventilation was little thought of, and when, in a word, every condition prevailed that would tend to favour the spread of a contagious disease from one patient to another. More recent experience proves that when the contrary is the case (as, for example, in such an institution as the Rotunda Hospital in Dublin), the occurrence of epidemics of this kind may be entirely prevented, and the mortality approximated to that of home practice."

Contagious or Endemic Nature of Metria.—"The last source from which septic matter may be conveyed is from a patient suffering from puerperal septicœmia, a mode of origin which has, of late, attracted special attention. That this is the explanation of the occasional endemic prevalence of the disease in lying-in hospitals can scarcely be doubted.

The theory of a special puerperal miasm pervading the hospital is not required to account for the facts, for there are a hundred ways, impossible to detect or avoid — on the hands of nurses or attendants, in sponges, bed-pans, sheets, or even suspended in the atmosphere—in which septic material, derived from one patient, may be carried to another."

OPINION OF PROFESSOR LEISHMAN.

On Cottage Hospitals.—"The smaller establishments are more easily managed, and of late years show a rate of mortality which is, as compared with former experience, highly satisfactory. Still, much in this particular direction requires to be done before hospitals are freed from this especial danger, and it is more than probable, as we conceive, that this may ultimately be achieved by the cottage hospital plan, the great objection to which is, unfortunately, especially in large towns, its cost."

On Prophylaxis.—"It is impossible to exaggerate its importance, in its bearing upon prophylaxis, of the strictest attention to cleanliness on the part of the practitioner, who in an ordinary case should wash his hands not only after, but before each examination. Such a precaution would, no doubt, be scrupulously observed had he just come from a case of scarlatina or erysipelas, or from a post-mortem examination ; but, the more completely the doctrine of septic infection is established, the more clearly does it appear that the great majority of cases of puerperal fever are preventible, and, if so, we may be sure that to act in every case as if we had special reasons to fear that we might propagate the disease, is the surest way to reduce the risks to a minimum."

OPINIONS OF DISTINGUISHED CONTINENTAL AUTHORITIES ON CONSTRUCTION OF LYING-IN HOSPITALS.

Oppolzer, Rokitansky, Skoda, Virchow, Schwarz, Löschner, Hecker.—We quote the following from Dr. Duncan's excellent work, whose preface to their views is an ample apology for introducing them here :—

" I have no intention to enter upon this subject farther than to express my approbation, generally, of the opinions of several great physicians which I shall cite. The circumstances under which their testimony was

given, and its tenor, are very well described by Le Fort in his work on maternities. I shall quote at length his account. Before doing so I must ask the attentive reader to excuse some confusion which he will observe, and which arises from the indefiniteness of terms. This confusion exists in the original documents, and I cannot mend it. This is of less importance, because the principles of construction recommended are easily apprehended in spite of the confusion. In several places I have not closely followed Le Fort's rendering of the German, having preferred to translate from the original.

"Before deciding (says Le Fort) on the construction of a new maternity hospital at Prague, the Bohemian Diet thought they could not do better than ask the advice of the physicians most competent in such a matter. Four questions were laid before MM. Oppolzer. Rokitansky, and Skoda, of Vienna; Virchow, of Berlin; Lange, of Heidelberg; Schwarz, of Göttingen; Löschner, of Prague; and Hecker, of Munich. Their answers are given in the *Monatsschrift für Geburtskunde* (August, 1864, S. 155)."

Contagious Nature of Metria.—"First question: Are the contagious origin and extension of puerperal fever epidemics certain, probable, or possible, according to the present state of science?

"Answers: There is no doubt of the origin and extension of puerperal fever by contagion. (Oppolzer, Skoda, Rokitansky.)

"In the development and the propagation of puerperal fever, the chief thing is a predisposition producing itself in the individual to diffuse and malignant forms of inflammation; from it alone, without contagion taking place, puerperal disease may result. A local specific infection—that is, contagion—first makes its appearance when the epidemic has reached a certain degree, and the contagion a certain intensity of efficacy. On an individual not predisposed contagion may continue to be inert. (Virchow.)

"Puerperal fever consists, according to the meaning of the words, in a disease of the blood produced by infection with decomposed animal matters. Infection generally comes from without, more rarely is it self-infection. The contagiousness of puerperal fever (by inoculation of specific products) must be denied; on the other hand, inoculation by means of animal or cadaverous poison may well be admitted. (Lange.)

"Puerperal fever, like hospital gangrene, is produced by noxious effluvia. (Hecker and Schwarz.)

"I observe that, with the exception of Löschner, who does not venture an opinion, the most illustrious physicians of Germany admit in a formal manner the contagiousness of puerperal fever; I have also already proved it by facts, and we ought now to draw a first conclusion: women attacked by puerperal fever should be isolated from others."

Large and Small Lying-in Institutions.—"Second question: Are large lying-in institutions, well arranged for the purpose, admissible; or is it preferable to subdivide them into several smaller lying-in institutions? How large may the latter be?

"Answers: If the construction is well adapted for the purpose, and there is sufficient spaciousness, large lying-in institutions are not specially more disadvantageous than small ones. (Rokitansky, Oppolzer, Skoda.)

"Virchow declares himself decidedly opposed to a great lying-in institution. Separate hospitals for 800, or at most 1,600 labours, should be erected in separate parts of a town, with sleeping apartments for from 20 to 30 pregnant women, and wards for 10 lying-in women at most.

"Great lying-in hospitals are not admissible. The smaller the institution the better in general are the health conditions. (Lange.)

"The construction of great lying-in hospitals is inadmissible. The smaller such a building is, and the greater extent of space occupied, the better. (Hecker and Schwarz.)

"Great lying-in institutions are inadmissible. (Löschner.)

"Here also is remarkable unanimity. I believe with Virchow, that one might, at great expense, construct a large establishment, admitting of 1,500 labours annually, with some safety; but I declare myself energetically in favour of small establishments. The chances of infection are less great there; and if an epidemic, which cannot always be prevented, and for whose possible occurrence it is necessary to provide, where developed by contagion, the immediate evacuation and closing of a small establishment involves less inconvenience, because it does not suddenly put a stop to the succour given to a great number of pregnant women. Thus we arrive at this second conclusion: A maternity should be arranged in such a manner as to admit of 800 to 1,000 labours annually at most."

Separation during Epidemics.—"Third question: Is it necessary during an epidemic to separate and disinfect, and therefore to erect an occasional house? (Wechselhaus.)

"Answers: Separation of the lying-in houses, conveyance of the healthy pregnant and lying-in women into an occasional house of one-third of the size of the lying-in institution, are necessary. (Rokitansky, Oppolzer, Skoda.)

"Complete evacuation must take place when diffused infection is established; partial evacuation, with separation and disinfection, in the case of characteristic single cases. A middle building for pregnant women, with two wings, to be used alternately for the lying-in, is the form recommended. At a sufficient distance a wash and disinfection house are to be erected. (Virchow.)

"Separation is of little advantage; disinfection, of course, imperative; an occasional house necessary. (Lange.)

"Even an establishment of small extent requires an occasional house. (Hecker and Schwarz.)

"Complete stoppage of communication between the different houses is necessary. In case of need, entire separation. (Löschner.)

"Like the high medical authorities whose opinions I have just reported, I am a partisan of the separation of the sick, the complete evacuation of the lying-in house in case of an epidemic, and of the complete disinfection by washing of the walls, fumigations, opening the windows, rest during one or two months; but I do not join in their recommendation as regards the necessity for occasional houses, at least if by an occasional house is meant an infirmary for the diseased lying-in women. If by the word is meant an alternating maternity, we come, in truth, upon financial difficulties which are of themselves serious; but, what is more so, is that the measure would be probably inefficacious.

"In order that the evacuation into the occasional house should be useful, it must be complete; that is to say, it must comprise all the individuals of the medical service and of the general services—kitchen, wash-house, offices, &c. In fact, if the lying-in alone occupy the occasional house, the different services, the employed, the midwives, the physicians, returning several times daily from the infected house, would bring the disease into the occasional house, and the separation would soon be illusory. To make it real, it would be necessary to have, in some sort, two maternities, with double general services, and consequently to involve considerable expenses, with a view to a utility very doubtful and also exceptional; for in a well-organized maternity epidemics may be, and should be, very rare. If there were two similar houses, they ought not to be in proximity to one another, within the same ground, at the risk of seeing the separation remain sometimes

inefficacious, the atmosphere being able, at so short a distance, to play the part of means of transport of contagious miasms.

"What appears to us indispensable—and we believe that such is the signification of the word occasional house—is an infirmary completely separated, as is the case everywhere in Germany, in Russia, at Copenhagen, in Switzerland, for small-pox; an infirmary to which would be carried the lying-in as soon as they presented an individual and isolated case of puerperal fever.

"But how is the want of succour to be supplied, that is brought about by closing the maternity when it becomes exceptionally the theatre of an epidemic?

"I had the honour, some months ago, in such circumstances, to propose to the Director-General of Public Aid, and the happiness to find him accept and put in operation, what I believe to be the best means to employ: confinement at home by the midwives of the town, at a sacrifice of money somewhat considerable, but of short duration. It is easy for an administrative body to come to an understanding with a certain number of midwives as to their receiving as private lodgers women coming to be confined, and thus supplying the want of hospital beds. A pregnant woman presents herself at the maternity for her confinement, and the establishment cannot receive her; but there is handed to her a billet, with the address of this or that private midwife, and she goes there to be confined as a lodger, at the expense of the administration, which knows how many of these temporary beds are at its disposal, how many are occupied, how many which are still at their service. We therefore lay down the following conclusions:—

"Every maternity should have the double of the beds regularly in use, so that each ward, after having been occupied during the time necessary for the recovery of the lying-in who have been accommodated in it, may be ventilated and remain unoccupied during an equal period of time. The alternation should be established between the left and the right side of the house, or between two different storeys.

"When a case of puerperal fever shall have appeared in a ward, after the removal of the patient to the infirmary, and the dismissal of the other lying-in women of the same ward, who are to be kept in a sort of quarantine till their recovery, the ward shall be entirely cleansed.

"When an epidemic appears in the maternity, no new lying-in women shall be admitted; the establishment may be evacuated; but in no case shall the confined be sent to other lying-in establishments. After its evacuation the establishment shall undergo an absolute disinfection, a

complete cleansing, and shall not be again opened till after a rest of a month at least."

Segregation House.—"Fourth question: May the lying-in house and the occasional house be in immediate proximity, under the same management and administration, or not?

"Answers: The occasional house may be in the neighbourhood of the institution, and under the same household management. Physicians, midwives, linen, &c., must be distinct, and remain separated from the lying-in institution. (Skoda, Rokitansky, Oppolzer.)

"The medical attendance and the services of the several institutions must be separate, and independent of one another. (Vichow.)

"There should be the greatest possible distance between the lying-in house and the occasional house. In addition, it is necessary to take care that the medical and nursing departments of the two houses be completely separate. Separate household administration is desirable. A lying-in institution should be isolated, and surrounded by gardens. Conjunction with other hospitals or gynækological wards is unpardonable. (Lange.)

"The different houses should be not only entirely separated from one another by ground, but also in furniture, medical attendance, and services. (Hecker and Schwarz.)

"The authors whom I have quoted—physicians of incontestable authority on this subject—are, as we see, explicit on all the questions. I join absolutely in their views, except one little modification. The essential point is to avoid all direct communication between the maternity and the infirmary; but I do not see what evil can arise from not having the hospital and its annex under the financial administration of the same manager: for everything else I am in favour of complete separation.

"The special infirmary should be attended by a physician who does not take midwifery practice in the town, and who does not reside in the institution. He should be aided by an assistant lodged in the house, but who must not, under any pretext, enter the chief maternity. The same rule will apply to the servants. The infirmary linen should be washed in its own 'wash-house.'"

Question of Relative and adequate Accommodation.—The next important subject that ought to engage our attention is the question of proper and adequate accommodation being provided for our lying-in women, and this will be best brought out by comparing the

respective conditions in London, Dublin, and Edinburgh. We must, before doing so, in the first place, bring out some general statements concerning the three capital cities. Thus:—

TABLE XLII.—*Showing relative bearing of London, Dublin, and Edinburgh to each other.*

London is twelve times larger than Dublin, and sixteen times larger than Edinburgh.

From its size, its resources, its being the metropolis, &c., it is admittedly famous for its wealth and poverty.

In London, 127,257 women are annually delivered; in Dublin, 9,325; in Edinburgh, 7,230.

Provision admittedly ought to be afforded for a certain proportion of poor and deserving cases in each of these cities.

The number of births in proportion to 1,000 of the population in London is 36·1, in Dublin, 29·7, and in Edinburgh, 33·2.

London therefore exceeds Dublin and Edinburgh in the ratio of its births to 1,000 of the population by a number which would nearly equal the aggregate of these two cities put together.

No new Maternity or Lying-in Hospital has been established in London for over 100 years, *i.e.*, practically, no increased provision made for the increase of 3,000,000 of people. In Edinburgh the Simpson Memorial Hospital has just been opened; Dublin is also extending its lying-in accommodation, which already exceeds London in its number of beds (p. 124).

It appears from the *Medical Directory*—the official source of information—that there is no lying-in hospital in the district officially known as the Western—though large and important. The four existing hospitals are situated in the central and southern parts of London. This division therefore is unoccupied.

There has been no lying-in hospital on the Cottage principle established in this country.

Small hospitals exist in this country and abroad, to meet very limited requirements, and the results obtained in them are such as clearly to show that isolation is preferable to aggregation. In St. Petersburg small lying-in hospitals have been erected in different parts of the town, and though not on the system of complete isolation, the results are reported to be better than in bygone years.

It is evident, from the facts already stated, that London ought at least to be on a par with the other capital cities of the kingdom. But by examining the two accompanying tables, it will be seen that London is not only not equal to Dublin or Edinburgh in its lying-in provision, but also it is **far** behind these two cities. This is terribly noticeable in its lying-in provision, not so in its medical and surgical provision.

TABLE XLIII.—*Showing approximate Number of Medical and Surgical Beds, and the Relief afforded, in London, Dublin, and Edinburgh.*

Town.	No. of Beds for all purposes except lying-in.	Proportion of Beds to Population.	No. of In-patients.	No. of Patients to a Bed Annually.	No. of Out-patients.	Proportion of Out-patients to Population.	No. attended at their own Homes.
London ...	10,760	1 to every 330	58,318	5	1,241,247	1 in every 3	12,000
Dublin ...	1,615	1 ,, 195	*				
Edinburgh	736	1 ,, 327	1,960	3 (nearly)	62,996	1 in every 4	10,000

* Dublin statistics are here so deficient that no useful end could be obtained in quoting them.

TABLE XLIV.—*Showing approximately the Lying-in Accommodation, and the Number of Women Attended by the aid of the Hospitals in London, Dublin, and Edinburgh.* (See also pp. 201–3 & 208).

Town.	No. of Lying-in Beds.	Proportion of Lying-in Beds to Population.	No. of Women Delivered in Hospitals Annually.	No. of Patients to a Bed Annually.	Proportion to No. of Women Annually Delivered.	No. of Gratuitous Deliveries at Home.	Proportion of Out-door Deliveries to Total No. of Women Delivered.
London ...	145	1 for every 24,000	1,300	9	1 in every 98	15,000	1 in every 8
Dublin	155	1 ,, 2,000	1,800	11½	1 ,, 5	3,000	1 ,, 3
Edinburgh .	30	1 ,, 7,500	260	9	1 ,, 27	1,740	1 ,, 4

We next come to sketch briefly and roughly the best kind of lying-in institution according to the principles now laid down. In doing so we must not only have regard to the need, but also to what may be considered expedient—founding what we have to say upon the previous table of statements.

We cannot do better than imitate the example of the Dublin Rotunda Hospital (one of the oldest and most favourably known lying-in hospitals in Europe) in regard to the objects and uses of such an hospital. We should therefore venture to throw out the following proposal as a basis fit for operation :—

1.—**A Lying-in Hospital** should be erected for the poor in the district of London officially known as the Western, where no such hospital exists, and from the want of which much avoidable suffering is entailed upon mothers, as well as evil results upon their children—preventible by skill, nursing, and proper sanitary arrangements.

No hospital of this kind has been established in the metropolis for more than 100 years. There are only four existing, and these were founded in 1749, 1750, 1752, 1765, respectively. The population in 1750 was estimated at 676,250; now it is 3,555,394. Eminent obstetric and scientific authorities are of opinion, from experience at home and abroad, that the mortality in connection with lying-in institutions is largely under the control of sanitary arrangements and general efficient management. In establishing this new hospital, due regard should be had to carrying out all that modern improvement in sanitary science has effected in this direction. And with the object of securing, as far as practicable, the separation of patients, the hospital should consist of a series of from fifteen to twenty cottages, with four patients in each—each patient having a room to herself; the cottages to be situated around an open space of ground, in which the patients may walk, when expedient, to regain health and strength (see plans, p. 126). There is no institution of this kind in Great Britain.

The present hospitals are situated within a couple of miles of each other, and in the densely peopled and central parts of the town; the number of beds, however, in them all amounts only to about 145—a number totally inadequate to meet efficiently the requirements of the metropolis, where there are so many poor and needy women daily confined—in many cases, in the **same** room in which the rest of the family dwell, there being **thousands of families** in London who live in and occupy one room only. The number (even approximately) cannot be ascertained at present, but some idea may be formed from the fact that in Holborn alone the number so situated amounts to 8,000. In not a few instances, two families have only one room between them. (See p. 166.)

There is wonderful provision made for every kind of sickness or disease in our excellent general hospitals; and there are special hospitals for treating almost every conceivable class of ailments, *e.g.*,—

Epilepsy (3), with 130 beds; the Eye (6), 200 beds; Fistula (1), 50 beds; the Hip (1), 70 beds; Stone (1), 15 beds; the Lock (2), 208 beds; the Feet (3), 95 beds; Cripples (2), 100 beds; Consumption (4), 468 beds; Children (11), 421 beds. It would be tedious to enumerate more; suffice it to name the Ear, the Teeth, the Throat, the Skin, the Heart, the Legs, Cancer, Small-pox, Fever, Incurables, Provident Asylums, Seamen, Temperance, &c. (See Table XLIII.)

But London—famous among the cities of the world for its size, wealth, and poverty—can boast of hospital accommodation for lying-in women of only 145 beds ! *

To sum up, London has :—

i. 15 General hospitals (11 connected with the Schools of Medicine), with about 4,725 beds.

ii. More than 70 special hospitals, for treating separately the different classes of diseases which our general hospitals are daily engaged in relieving, about ... 6,035 „

Total... ...10,760 „

iii. **Four** lying-in hospitals, the usefulness of which is apparent and undoubted, and the **only** illness which cannot be provided for in general hospitals ... 145 „

Thus London, with a population of upwards of three and a half millions, has only one lying-in bed to every **24,000** of the population, contrasting unfavourably in this respect with such of our other great towns as make any provision at all for lying-in women; Dublin, with a population of 314,666, has 155 lying-in beds, that is, one lying-in bed to every **2,000** of the population. Continental towns have even greater provision of this particular sort than Dublin; *e.g.*, Vienna has 1 lying-in bed for every 300 : even Florence has one for about 1,600 it is said, and it is not famous for its adequate lying-in accommodation. London is far—many times—behind other large towns in its lying-in provision. The need therefore is great. (See pp. 99, 107.)

It would be well to have about sixty lying-in beds—a small number, considering the size of the district, and in comparison with the Dublin Rotunda Hospital, which has 115 for the same object. There ought to be, judging from modern experience, a moderate charge for the patient's board and washing—much less than would be requisite for paying a doctor, or hiring and feeding a nurse; while the patient's own poor dwelling will be protected from overcrowding, and the evil consequences resulting therefrom.

For the purpose of meeting a want felt in connection with the congregations of many parishes and districts, a few beds ought to be made available **in perpetuity** at £450 each. A single donation of this amount (collected by private subscriptions, offertories, etc.) should secure the bed as the property of the parish or congregation, and thus admission **gratis**

* In connection with this subject see pp. 133, 183, 187.

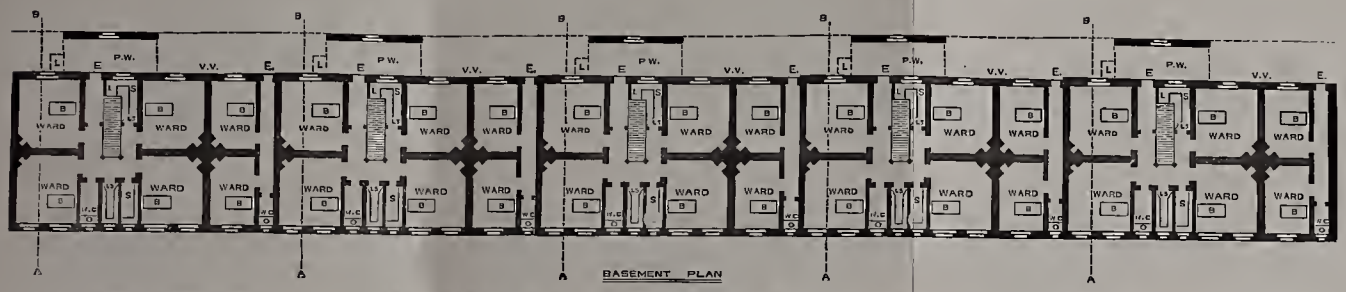
PLAN OF PROPOSED COTTAGES.



FRONT-ELEVATION.

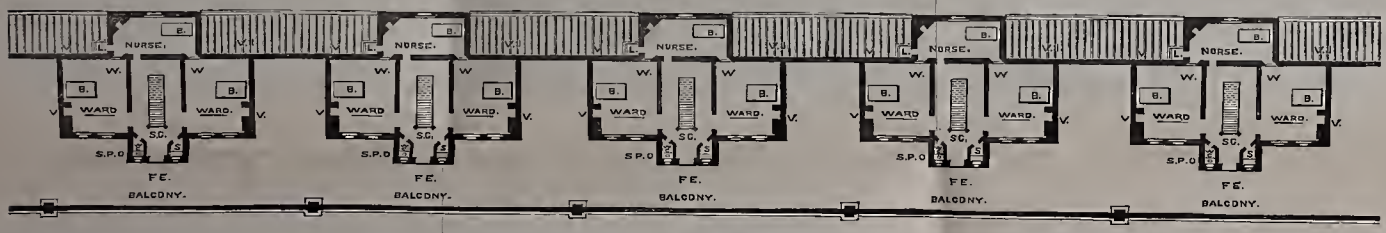
These Cottages (15 to 20) to be placed in a Crescent or Semicircle round an Open Space of Ground or Garden. *See page 125.*

Showing 5 of a series of an indefinite number of Cottages. Two Stories—Ground and First Floors with Windows of half Basement Story. Entrance door on Balcony.



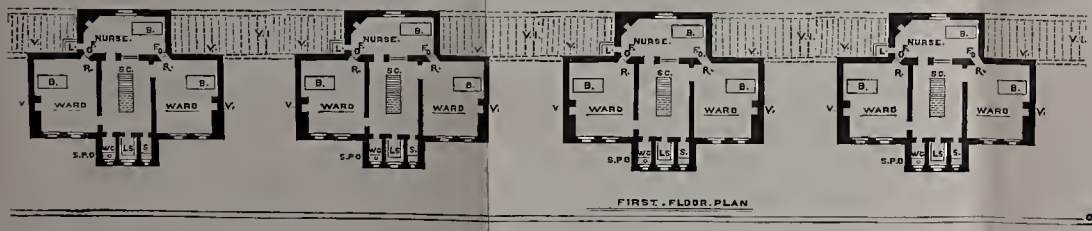
BASEMENT PLAN

Showing continuity of Basement of Cottages with rooms intervening; no communication. 4 Rooms marked Wards under each Cottage and Balcony, to be utilised by nurses or expectant patients. 2 Rooms between Cottages for nurses or midwives. L.S. Large Linen Store underneath stair for Cottage. S. Scullery, with all requisites. W.C. Water-closet. L.S. between W.C. and S. represent fitted Linen Store, which might be turned into a Bath Room. B. represents Beds placed merely *in situ*. V. Ventilation. L. Lift. E. Entrance from back. P.W. Continuous pathway to all Cottages from Central Department, along which all food, &c., comes, sheltered overhead by glass Verandah, V.I., but open to side. Basement Rooms between Cottages entered from P.W.

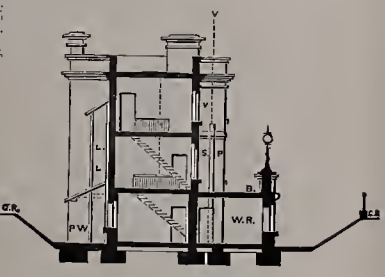


GROUND PLAN.

Containing 2 single-bed Wards, Nurse's Room, &c. W. Window of fixed glass from Nurse's Room to Ward. V. Ventilation. S.C. Staircase in centre of wide passage. S. Scullery, with fitted hot and cold water services, and all requisites for soiled linen. W.C. Water-closet. F.E. Front Entrance on Balcony (B) of Cottage. S.P. Soil Pipe O., external and ventilated as shown on section. V.I. Top of Verandah. Wards of this floor seen into from Nurse's Room on First Floor.



FIRST-FLOOR PLAN



SECTION ON LINE A & B.

Plan of Rooms, &c., of separate Cottages. B. Beds *in situ* in single-bed Wards, containing about 2,000 cubic feet of space. S.C. Staircase. V. Ventilation. V.I. Verandah over P.W. (pathway). R. Window of fixed glass to enable nurse to see patients in each room. O.F. Opening of fixed glass in Floor to enable Night Nurse to see patients on Ground Floor, or Day Nurse in charge of Cottage to observe all patients in Cottage. L.S. Linen Store, fitted, and with glass window. S. Scullery, fitted with hot and cold water services. W.C. Water-closet. S.P. Soil Pipe *outside* Cottages. Soil Pipes ventilated, and Apparatus for doing so, seen in section at right-hand side of same plan. Section.—W.R. Room for "Expectant" Patients, i.e., Patients waiting to be confined. B. Balcony. L. Lift. G.R. Ground Line. P.W. Pathway communication.



BACK. ELEVATION.

G.R denotes Ground Line. L. Lift to each Cottage. Windows on Ground and First Floors denote Windows to Nurses' Rooms. V. Position of Ventilating Apparatuses in walls. P.W. Pathway with (V.I.) Glass Verandah overhead.

The accompanying Sketch shows:—

Three acres of most suitable ground in West Brompton now available for an Institution such as that proposed. There is a large mansion already prepared for the central detached administrative department. The cottages might be built around the ground.



Scale of Chains

would be afforded for sixteen women annually—a great boon especially to those churches having mission charges, or to those with many poor people connected with their congregations. The gift of admission to recipients of this class ought to be in the hands of the clergy, church-wardens, session, or deacons. The bed ought to bear the name, if not otherwise desired, of the parish or donor.

2.—**To afford efficient means for delivering Poor Women at their own Homes.**—Considering the size of the Western district—extending from Westminster, over Belgravia, Pimlico, Brompton, Chelsea, Kensington, Hammersmith, Notting Hill, etc.,—hospital accommodation cannot be established to meet fully its requirements, so that it is advisable to have a number of well-defined sub-districts, to which nurses together with obstetric pupils, or midwives, might be sent from the hospital to attend poor women at their own homes. A physician residing in each sub-district ought to be elected and attached to the hospital, and he ought also to attend in cases of difficulty. Thus a large and pitiable class of cases should be attended to which the Maternity Charity, in connection with the Provident Dispensary system (useful as it may be), cannot overtake. A committee of ladies ought to be appointed to enquire into the suitability of applicants for this extern maternity department. (See pp. 112, 114.)

3.—**The Treatment of the Diseases peculiar to Women.**—The treatment of the diseases of women is a very natural adjunct to a maternity hospital. Therefore, to make the hospital more complete, there ought to be a limited number of beds set apart for this purpose. This "auxiliary" hospital would be separate from the lying-in department. There must necessarily be a corresponding out-patient department for the treatment of the diseases of women.

4.—**A Training School for Nurses.**—Women of high character ought to be received and thoroughly trained (by lectures, practical instruction, etc.), preparatory to their going out as nurses for the extern maternity department, and they ought to be specially prepared in their second year for private nursing. By such a plan as this, a present great want would be supplied, and at the same time an income produced, which would considerably add to the resources of a hospital. At present the pre-

scribed time for training in order to obtain the requisite "diploma" is **one month**—a totally inadequate period. A person to be a good "monthly" nurse ought first to learn the principles of general nursing, and then advance to the special training.

"There is scarcely a person of note whose life—or whose mother's life—might not at one time have depended upon the skill of a midwife. Every childbearing woman looks for some help in her travail. Newton had a narrow escape. Goethe begins his remarkable autobiography by observing, that through the unskilfulness of the midwife he was born for dead, and only after manifold efforts of those around him saw the light (1749). His misadventure so impressed his grandfather Textor, the mayor, that he introduced an obstetrician, and instituted or restored the School of Midwifery in Frankfort. What had been his danger proved a means of safety to the city. Shortly afterwards the Royal Maternity Charity was founded in London. This admirable institution was established in 1757 for the instruction and employment of midwives to attend married women in their confinements at home."

5.—**To afford Practical Instruction in Obstetrics to Medical Pupils.**—This is not the least important object. The Rotunda Hospital in Dublin is at present the only place in the United Kingdom where the members of the medical profession can approximately obtain such practical acquaintance with obstetrics as is afforded them in the departments of medicine and surgery.

From the medical schools of the metropolis about 400 or 500 students pass annually--there are as many more from the provinces—and after obtaining their diploma, they embark in the active duties of medical life. The practical knowledge of these men in the two great branches of the profession other than midwifery is acquired in our large hospitals under the immediate supervision of the most eminent members of the profession, with a labour, care, and minuteness which is unparalleled. But what is the case with midwifery? The student goes **alone** to his first cases (see pp. 68 71,) having had no practical experience in regard to the very important natural functions and morbid processes, in respect of which his theoretical knowledge has been previously acquired solely from lectures or books. And yet, after he has obtained his degree, probably two-thirds of his practice will be in this branch of his profession. Is it not evident that ignorance herein, and especially of those more difficult cases which a hospital experience and extended observation and guidance would bring him in contact with, may cost the life of some poor

women, as well as infants, at the outset of his career? This institution would provide a remedy for this defect by a thorough course of clinical instruction, and in doing so must prove a great public boon.

Dr. Farr says: "The second order of developmental diseases concerns women; 2,560 women died of childbirth, exclusive of nearly an equal number, 2,505, who died of puerperal fever following childbirth, and are found in the zymotic class.

"The deaths of mothers being 5,065, and the number of children born alive 850,607, it follows that to 1,000 children born alive six mothers died. The Table 15, Appendix, shows the mortality of mothers in London and in the rest of the country. The table bears ample testimony to the utility of skilful midwifery. In London the women receive skilful help, and the mortality is at the rate of 4·7 mothers dying to 1,000 children born. In North Wales, where the mothers are left to nature or to unskilful old women, the mortality is double that of London, and 9·4 mothers die to 1,000 children born. It is to be regretted that the College of Surgeons have been obstructed in their attempt to carry out the law by unreflecting opposition.

"The mortality of the mothers of England, notwithstanding the progress of obstetrical art, was higher in the two years 1874-5 than it has ever been since 1847.

"There is no adequate provision to supply the poorer classes with skilful midwives. How long is this sacrifice of lives to go on?

"For so destitute are some poor creatures, that either in such separate institutions or in workhouses they must have help, and this necessity may be turned into account in a training medical school."

Dr. M. Duncan states: "The history of medicine, while it records no such sustained and able attack on hospitals as is now going on, is full of evidence of the value of these institutions. They have been, and continue to be, the nursing-mothers of the science and art of medicine in all its branches. Without them little progress could have been made in the past; without them little hope of progress can be entertained for the future. Meantime, it is impossible to conceive the carrying on of sound medical education without them; and if this cannot be done, their destruction must inevitably be a great curse to the community. While there can be no doubt of their incalculable value to the public, it is said that they are a curse to their own inmates. My object is to enquire whether or not this charge against them is true, so far as maternity hospitals, which are said to be the worst, are concerned.

"I enter on the subject with great care, for I regard the institutions

attacked with the reverence due from a child to its mother; and I do not hesitate, in advance, to say that I regard the attack on hospitals, apart from its scientific merits, or demerits, as conducted in a very indecent and injudicious manner."

Dr. M'Clintock affirms: "After twenty-five years' practice I can conscientiously aver that no single instance ever occurred where there were the remotest grounds for supposing that I carried contagion to a patient; but then I was always careful to use the ordinary precautions. Cases of puerperal fever have occurred in my private practice, but they were at long and irregular intervals. In the spring of 1855, when the disease was so frightfully prevalent in this city, and so fatal in the Lying-in Hospital, I attended five ladies in different parts of the town, and not one of them had even a threatening of the disease. Now, had any of them got it, I might certainly have been suspected of bringing it to her from the hospital (of which I was then master)." (See Dr. Playfair's letter in connection with this subject, page 187.)

COMMENTS ON MISS NIGHTINGALE'S REMARKS ON CONSTRUCTION.

1. How many beds in a ward?

Not more than four.

Or single-bed wards might be arranged in groups of four.

*Also, it must always be borne in mind that four beds mean eight patients. There are two patients to each bed (unless it is meant to kill the infants) to use up the air,

1. *One* only.

*This is true, but we must not imagine that either the mother or infant is so very tender or sensitive. The vaunted safety of lying-in at home clearly proves that mother and child will do perfectly well in a room of average size. The mothers and infants, or either of them, are not killed. We think one child in every 100 is not provided so well for as we propose they should be in this cottage hospital. At the same time as much good air and space should be given as economy can afford and the requirements demand. A family (*i.e.*, 5 or 6 persons) lives in one room often—it is computed that there are 8,000 such in Holborn alone—yet the average death-rate is not more than 1 in 200 in all London. (See p. 166.) An operation has been performed which not only exhausts the mother, but renders her helpless, and makes her system peculiarly susceptible to influences, if not prevented, quite as bad as any average operation could. Pain has been endured of the most terrible kind.

Lying-in is more dangerous in a hospital where perhaps there are no bad smells perceptible to the nose, than in the houses of the poor, where the smell may be nasally abominable. There is, therefore, great difference to lying-in women between the deleterious ingre-

which is, besides, used up by a necessarily far larger number of attendants than in any general hospital. For during the time the mother is incapable of attending to the infant, the infant is incapable of attending to itself. Also, an exhausted mother, and feeble, almost lifeless, infant, cannot ring a bell or make themselves heard. Indeed, an infant which cannot cry is in the greatest danger.

For all this provision must be made. There are scarcely two points in common between a lying-in institution and a general hospital.

dients of the atmosphere in hospital and at their own homes. The morbific influences may not be perceived and yet be very injurious.

Professor Marshall has introduced to notice not only a novel, but also an extremely interesting plan for hospital construction, viz., wards arranged in circular towers. The plan is essentially one for general wards, and useless for isolation. We may, however be pardoned for saying something upon it here, for a new idea is a somewhat rare commodity, and is worth a great deal. So far as can be judged, the plan is well worthy of consideration by all who are about to build new hospitals. It has, undoubtedly, several apparent advantages over the old plan. There is much to commend a large circular ward with one row of patients round its circumference, and the whole of the rest of the ward free. Such would help the sick poor to take more kindly to hospital than the old plan of two rows of sick people—one along each side, a bed or two at the end, and a few cribs, not unfrequently, in the centre. It puts and keeps one almost always "in the blues" to see a sick or dying person wherever you chance to cast your eyes. This would not be the case so much in a circular ward and it might be still further removed by the erection of a small inexpensive curtain between the beds.

In dull, close, damp days, when the outside air is almost stationary, a circular ward, in virtue of its construction, must be more likely to catch the gentle breezes as they pass, than any other form. Some hospitals have openings only on one side, but the wind may not come from that direction, and it is lost. While, again, if it blows a "perfect" hurricane there is only a small part of the exterior of the circular ward exposed to it, and this part may be managed.

The disadvantages are the amount of ground it would require as a site, the cost, and the difficulty of getting a change made from our present system. These appear to us small compared to the advantages so far as a curative asylum for the sick is concerned. These advantages would make it invaluable as a place of instruction. The details are not so full as to enable us to judge as to the expediency of the central part as delineated in the circular ward system; this is, however, a matter of detail.

2. How many wards to a floor?

Only one four-bed ward, or four one-bed wards in a group.

3. How many floors to a pavilion (hut or cottage)?

Two, at most. In every alternate pavilion better only one floor, unless the pavilions be so far apart as to cover an extent of ground which would make administration almost impossible, and cost fabulous.

*How many beds to a pavilion or hut?

There would, therefore, be no more than eight beds, and in each alternate pavilion no more than four beds.

†How many

2. Two single-bed wards, separated from each other by an open airy space of about 10 feet. See plan of cottages.

3. Two. Cottages to be 15 feet apart. No communication by corridor, or otherwise between the Cottages.

We think that the plan we have advocated in the foregoing, both as to administration and cost, the most feasible and expedient in connection with the system of complete isolation which we have seen anywhere. Possibly, it may be improved in its minor details.

We affirm that there is little, if any, difficulty in the administration of the proposed hospital. In some respects the administration and management must be easier and better than the same in our present hospitals. When people are told off to do definite portions of work the work is better performed. Each nurse will know what she has to do, and she will therefore be more likely to do it, because there will be definite, and separate, and personal responsibility. The faults, omissions, or shortcomings of a nurse cannot be laid on the shoulders of another, as is done occasionally; and one's dues will then be more justly and faithfully meted out. We cannot well see, on examining such a plan as on page 126, how administration will be more difficult, not to mention "impossible."

We venture, also, to hope that the cost will not be an insuperable barrier—the chief expense will be required at the commencement, afterwards it may be made self-supporting. We do not see that these can form serious difficulties. (See p. 200.)

* Four lying-in beds in each Cottage, with accommodation for nurses and waiting patients.

† 15-20 Cottages. When the separation is complete, the number must depend on the requirements of nursing and training, and the demands for admission by the public.

When a lying-in hospital is to be a **school** in which nurses and medical men are to be practically and efficiently trained, it must not be too small, nor yet too large. We must have, on the one hand, a large enough field to work upon, and, on the other, a field not so large or cumbrous as to make it unwieldy, or so that one man (the master) may not be able to superintend the details, along with, of course, proper

pavilions or huts to a lying-in institution?

Not more than four two-floored pavilions, two one-floored pavilions, and two two-floored delivery pavilions; unless, indeed, building space can be given, with all its cost and administrative difficulties.

4. How much space to the bed?

The minimum of ward cubic space for a lying-in woman, even where the delivery ward is, as it always ought to be, separate, is 2,300 cubic feet in a single-bed ward, and 1,900 cubic feet in a four-bed ward.

assistance. A few hundred patients annually would be far too few, considering that medical students or pupils have only a limited time in which to study this important branch, and that it is requisite, for safety and success afterwards, that at least they should acquaint themselves with all the various forms, except the rarer and exceptional cases—these latter they must meet usually on general principles. How necessary, therefore, is it that the groundwork should be obtained under a skilled teacher! But it would be positively injurious, both to the patients in the first place, and, secondly, to the school as a place of instruction, if the hospital were made so large that the master could not **personally** see that all his subordinates strictly obey the rules—even to the minutest details. With this idea in view, we think it advisable, at all events, to begin with from fifteen to twenty cottages with four lying-in beds in each. We thus could safely pass about 1,000 patients through the hospital annually.

Delivery wards may thus be entirely done away with. The rooms should thus simulate as much as possible, exemplary homes.

4. 2,000 cubic feet will be ample for each bed in an open airy space, such as cottages ought to be built upon. In workhouses the space is probably not more than 850 cubic feet. (See p. 65.)

2,300 cubic feet would make a very large room; we scarcely think a room of this size is required, if the plan we have advocated be carried out. 2,000 is ample. But the cubic space may be increased by heightening the room from 12 to 14 feet. We might here refer to Professor Marshall's paper, as giving the latest views upon this subject. He says—

"The amount of *cubical air space* for each patient necessarily follows the same rule, and would be relatively greater in the circular than in the oblong ward here supposed. Thus, the oblong ward, with 120 square feet to each bed, would give 1,800 cubic feet per patient, for a height of 15 feet; whilst the circular ward would afford, with the same height, either 1,995 cubic feet for each of twenty-two patients, or 2,443 cubic feet for each of eighteen patients. In special hospitals, any required amount of cubical air space could of course be obtained, either by an increase of height beyond 15 feet, or by diminishing the number of beds. In reference to the last point, it

*(In ordinary army wooden huts, where the air comes in at every seam, this space may be less.)

†As it is a principle that superficial area signifies more than cubic space, the surface of floor for each bed should not be less than 150 square feet per bed in a four-bed ward, and in a single-bed ward not less than 190 square feet, because this is the total available space for all purposes in a single-bed ward. This space has to be occupied, not only by the lying-in woman and her infant, and perhaps a pupil midwife washing and dressing it at the

may here be observed that all authorities agree that the number of patients in a pavilion ward should not exceed thirty. Stephen Smith (Billings' Reports) would restrict the number to twenty. The alternative numbers proposed in the above-described circular ward are eighteen or twenty-two." Comment upon this weighty opinion is useless and unnecessary.

*Query—Would this not kill most lying-in women in this country? We have already stated our impression that the good results obtained in military huts are due, mainly, to few being in at the same time, these few being married women, and all married women are obliged to go into the lying-in hut to be confined, and also that great attention is bestowed to ventilation.

Pneumonia, Consumption, and Bronchitis top the list of non-puerperal diseases which carry off women in childbed. (See p. 27.)

†168 feet seems to us enough, if other requirements are attended to as well. We provide another room for the nurse, whereby she can command complete supervision of the patient (see plan), and where she can bath and dress the infant.

In regard to this matter, Professor Marshall states :—

"It would yield, for twenty-two beds, about 133 square feet of floor space for each, and for eighteen beds, 162 superficial feet for each. The floor space per bed in any oblong pavilion ward 30 feet wide, in which a wall space of eight feet is allowed for each bed, is only 120 feet; so that the advantage of the circle is clearly obvious. A few years since, 84 superficial feet were regarded as an ample allowance for each bed; but according to Stephen Smith (Billings' Reports), 120 square feet are now demanded, and for certain special hospitals a still larger space is desirable. The circular ward system affords the most economical mode of securing such a space, so far as linear extent of wall is concerned."

In the cottage plan advocated, the mother and her child have a large room between them, and it is only under exceptional circumstances that more will be in the same room with them.

How many of the 888,200 women delivered in England in 1877 had such provision as indicated above, and delineated in the plan, page 126? Only a small fraction, we venture to affirm. But, it may be said, a place which is to be constantly used for lying-in purposes

fire, but often by the midwife, an assistant, possibly the medical officer, and pupil midwives. In a four-bed ward there is space common to all the beds.

must have more cubical air-space than a place to be used only occasionally for such purposes. No doubt this is true, more space will be required for several reasons, but certainly not to give more air-space, if those in charge would thus have an excuse for leaving the dust and filth, probably charged to 30 or 50 per cent. with organic matter, to accumulate for 6 months, or even a whole year. We ought to have great air-space, first, because it is necessary, and secondly, to show what fresh air can do and can prevent. After each labour the whole room should be cleansed thoroughly, disinfected and purified.

THE DELIVERY WARD

No delivery ward required in the plan advocated.

Ought to be separate in every lying-in institution; must be separate in an institution of more than four or five beds, though in separate compartments.

No special delivery ward is required, it is altogether dispensed with. Have patients confined in their own homes, a delivery ward or room? No. Well, here we wish to make it as like home as possible. The patient should be conducted by her nurse into the room when labour commences. She should remain there till it is safe for her to have a change, or leave the institution. Why should there be any delivery ward in a proper lying-in hospital? Would it not be an excellent improvement to dispense with the practice—horrible to a patient as it is trying to nurses—of carrying the patient, or changing her from one bed to the other? We think this can be entirely dispensed with.

Every delivery ward should have a superficial area of not less than 200 square feet, and a cubic space of not less than 2,400 cubic feet.

Delivery wards are requisite where there are many women assembled together in their lying-in. In small hospitals of about 30 beds the delivery ward is usually not conveniently situated. Often there is only one for all the floors, and that one on the ground floor, where there are no lying-in beds. In this case the patients have to be carried upstairs, not an easy or pleasant thing. (See p. 142.) Our largest British lying-in hospital has no delivery ward! To confine one woman, sometimes two, in a ward with from two to four women lying in the other beds is most distressing to think of—appalling. Yet this is the practice at the Rotunda Hospital.

5. How many windows to a bed?

One at least to each bed. Two beds and two windows on each side of the four-bed ward.

In a single-bed ward the bed should not be placed directly between window and door. And it must never be in an angle. There must be room for attendants on both sides of the bed.

This is still more essential in a delivery ward. Each bed should be lighted on both sides by windows, and should have at least five feet of passage-room on either side.

5. One large, or a double window to each single-bed ward is enough. The window should extend to the top of the room, which should be 11 or 12 feet in height.

Good. See the plan.

Only applicable to other hospitals, where there is no complete separation of the patients.

6. What are healthy walls

6. Healthy walls, ceilings, and floors must consist of impervious material.

and ceilings and floors?

Oak floors, polished; furniture also; impervious glazed walls and ceilings, or frequent lime-washing.

All (floors, walls, and ceilings) ought to be made of concrete—the marvel of the age. The wonder is that it is not more adopted. It is perfect for the purpose, fire and vermin proof, washable, and easily disinfected, durable, and last, but not least, economical—one-third less in cost than any other sort of building. The late eminent Dr. Parkes wrote "The walls and floors of hospitals absorb organic matters, and retain them obstinately, so that where there have been repeated attacks of hospital gangrene in a ward, it has been found necessary to destroy even the whole wall." How important, therefore, it is to have walls, floors, ceilings, all of an impervious material, which does not absorb, and which can be washed and disinfected easily. Cement covering concrete suits better than anything else at present known. Oak or any kind of wooden floors must give way sooner or later, and septic matter must be absorbed and retained in its pores. Polishing is only a relative safeguard. It is expensive and laborious. Concrete will meet this admirably.

All that has been so justly said as to the necessity of impervious polished floors and walls for hospitals applies ten-fold to lying-in institutions, where the decomposition of dead organic matter, and the re-composition of new organic matter, must be constantly going on.

It is this, in fact, which makes lying-in institutions so dangerous to the inmates.

Retention of organic matter impossible, decomposition will be excluded.

And it may literally be said that the danger increases as the square

Danger reduced to a minimum by complete isolation. Salubrity, so far as structure is concerned, made as nearly perfect as possible on the plan advocated. (See pp. 84—92.)

of the number of lying-in cases.

*Lying-in "infection" is a very good illustration of what "infection" really means, since parturition is not infectious or "contagious."

†The excessive susceptibility of lying-in women to poisonous emanations, the excessively poisonous emanations from lying-in women—these constitute a hospital influence on lying-in cases brought together in institutions, second to no influence we know of exercised by the most "infectious" or "contagious" disease.

‡The death-rate is not

*True; but parturition is followed by a state in which the woman is susceptible to morbific agents—infection, contagion, &c.

There is a good deal of quiet and innocent sarcasm in these remarks, and we might fittingly couple with them those others of this talented authoress, to wit: "Unless from causes unconnected with the puerperal state, no woman ought to die in her lying-in, and there ought in a lying-in institution to be no death-rate at all." (!) "Lying-in patients are to be compared to surgical (or operation) patients, not to medical patients, and should be perfectly well in health;" "though such (puerperal fever or peritonitis) ought never to arise after delivery in a properly constructed and managed institution." To members of the profession it is needless to encumber our pages with explanations, and the very limited application of these conditions. For others, we may say childbirth, as all know, involves great and serious risks; the state immediately following in some respects only, and in a limited number of women, also resembles the condition succeeding an operation, but there are so many differences that the natural act of childbirth cannot be compared to an operation at all. The last stricture is inconceivable altogether; puerperal fever and peritonitis may arise under the most careful conduct and proper management possible or conceivable. (See auto-genetic causes, Table XIV.) We cannot conceive how Miss Nightingale can affirm "there ought in a lying-in institution to be no death-rate at all"!! Can this be conceived by any one? Where is the place where childbirth is not attended by risk and death?

†It is scarcely considered that metria is so infectious as one might suppose from reading this paragraph. Dr. Kennedy and other authors state that it is about as infectious as erysipelas.

Dr. T. More Madden states, in the Dublin debate:—"There can be no doubt whatever that puerperal fever is a contagious disease, and that it may be carried But, although I fully admit this, still I do not think that contagion is the only or even the general way in which this disease, as an epidemic, is spread. On the contrary, many facts have been recorded long ago by Dr. Hulme, Mr. Hey, of Leeds, and M. Tonnelle, as well as by Dr. Snow Beck, and Dr. Brunton, of London, recently, which tend to throw much doubt on the question whether puerperal fever is so peculiarly contagious as it is commonly supposed to be or not. I have now seen a good many cases of puerperal fever, and I never yet saw two patients lying in adjoining beds affected with it at the same time, though I have seen patients in different wards, or even in different parts of the same ward, suffering from it at the same moment.

"The truth is, I believe that puerperal fever, like all other zymotic diseases, is not spread by contagion alone, although it is undoubtedly contagious, but it is also—and I am convinced more generally—diffused by what the old writers with great propriety termed 'the epidemic constitution of the atmosphere.'"

‡True; but the deduction is hardly conclusive.

much higher among women lying-in at home in large towns than in healthy districts. Therefore the agglomeration of cases together, and want of management required to meet it, must bear the blame.

As to floors, the well-laid polished floor is a *sine quâ non* in a lying-in institution, where, with every care, slops, blood, and the like, must frequently be spilt on the floor.

7. What is a healthy and well-lighted delivery ward?

There must be two separate delivery wards for each floor of the whole lying-in institution, so

There are other causes than "agglomeration" of cases together and bad management to account for the higher mortality in our lying-in hospitals. These no doubt have much to do with it. We have seen that more die in North Wales than in London, in childbed. While again, some hospitals, particularly abroad, have extremely good results, although the agglomeration is more than anything we know of in this country.

We here insert a letter from the *British Medical Journal* of June 28, 1879, on Puerperal Mortality. It is as follows:—

Sir,—Permit me to add a little supplementary matter to the interesting correspondence on lying-in hospital mortality. I can only echo the truth contained in your editorial annotation which makes the "chief lethal elements" in such mortality to consist in the double fact of the patients being unmarried and primiparæ. With respect to Queen Charlotte's Hospital, which has been introduced into the discussion, I may state that the unmarried form two-thirds of the total number delivered at that institution, and that the eleven fatal cases were all of them registered as "innupta" and "primipara." Mr. Goodman states that the annual number treated at Queen Charlotte's is "under six hundred"; whereas, if he will peruse the medical report, he will find that there were 810 deliveries in 1875-6, and in 1877-8 there were 1059 deliveries, with a mortality of 15, or 14·3 per 1000. In conclusion, I would point out to Mr. Goodman the contrast between the mental and physical condition at labour of, on the one hand, a married woman attended at home with, say, her fourth child, and surrounded by comfort of every kind; and, on the other, of a miserable friendless girl, broken down by shame and misfortune, or degenerated by privation and want, who has hurried hundreds of miles to the only refuge open for her.—I enclose my card, and remain, yours, etc.,

June, 1879. One who Knows.

We cannot well imagine what use can come from such a letter as this—simply quibbling, provoking a reply. It is well known, *e.g.*, that the in-patients in Queen Charlotte's rarely come up to 500, and it is the in-patient mortality that is questioned. (See pp. 18, 124.)

Why, the in-patients in the four lying-in metropolitan hospitals are only 1,300 annually. There are only fifty beds in Queen Charlotte's, and it would be impossible that twenty patients could be admitted in the course of a single year to each bed. We are not surprised therefore at not seeing a letter from Mr. Goodman in the Journal for July 5. A reply would be useless.

7. We have already, p. 135, dealt with delivery wards.

arranged and connected **under cover** that the lying-in women may be removed after delivery to their own ward. And for this purpose the corridors must admit of being warmed during winter, especially at night, so as to be of a tolerably equable temperature.

The wards, &c., ought to be heated from a central part so as to attain an equable temperature throughout the cottages.

Unlimited hot and cold water laid on day and night, w.c.-sink, bath-sink, clean linen, must be close at hand.

Requisite.

In a pavilion hospital one single-bed ward should be attached to each delivery ward for an exhausted case after delivery, till she is able to be moved to her own ward.

Not requisite, because each ward is itself the single-bed ward, and that best adapted for exhaustion, &c. Here again we see the advantage of the plan advocated. Half measures are never so good, though perhaps better than none at all.

The delivery

This shows well the advantage of the plan which we

ward should be so lighted and arranged that it can be divided, by curtains only, into three if not four compartments.

advocate. How fearful it must be to have four women in one delivery ward, or to confine a woman in a ward with other lying-in patients, as we hear is done in some great hospitals.—A practice as inimical to repose and convalescence as it is unseemly in appearance.

No woman being delivered should see another delivery going on at the same time.

Not only should she not see, but she should not **hear**. And this we think of greater importance even, because it is less considered, and therefore more apt to escape notice. This seems to us such a humane thing that we cannot help expressing our amazement at the continuance of the present practice in the Dublin Rotunda Hospital. There there may be one or two women in labour, with three or four other women lying in the other beds of the ward with their children.

The delivery bedsteads to stand in their own compartments.

The bed in the room of proposed cottage ought to stand almost opposite the window (see plan), and so that it may be freely gone about on all sides by the doctor and nurses.

Care should be taken that no bed should stand exactly between door and window, on account of draughts.

Good—draughts *are* prejudicial.

The curtains, of washing material, are only just high enough to exclude sight, not high enough to exclude light and air, and are made so as to pull entirely

Though this does not apply to the hospital advocated, we may here state that no curtains are required. Simplicity, separation, good ventilation, impervious material, ought to be the watchwords in the constructive arrangements, as economy, efficiency, and care ought to be in the management.

back when not wanted. Each area enclosed by the curtains should, of course, be sufficiently ample for pupils, attendants, and patient; also for a low truck, on broad wheels covered with india-rubber, to be brought in, on which the bedstead with the clean warm bedclothes is placed, and the newly delivered woman conveyed to her own ward.

Curtains are only requisite to subdivide the ward when there are many in it.

It is understood that newly delivered women cannot be removed from one floor to another. And it is quite necessary to have the means of keeping a corridor, along which a newly delivered wo-

Might we not add, that it would be an important improvement if we could so arrange as not to have to change the patient from her bed in all lying-in hospitals?

But, how often are lying-in women moved from one floor to another! Many of our lying-in hospitals are badly arranged, and from the nature of the building it is often impossible to avoid knocking the patients about a good deal when carrying them from the delivery ward to the general ward. The jostling some poor women have to endure in order to get them from the delivery ward on the ground floor, to, perhaps, the 3rd floor, through a bad staircase, is fearful. This cannot be adequately perceived unless one has actually seen it. (See p. 135.)

man is to be moved, at a proper temperature.

The position of the delivery wards should be as nearly as possible equidistant from the lying-in wards, and should be such that women in labour, on their way to the delivery ward, need not to pass the doors of other wards.

Not applicable to the proposed hospital, but of great importance to those built after the old plan. We have repeated this frequently.

A separate scullery to each delivery ward is indispensable; such scullery to be on at least an equal scale to that of ward sculleries. Hot and cold water to be constantly at hand, night and day. A sink-bath is desirable for immediately putting in water soiled linen from

A scullery is requisite, and ought to be conveniently placed for the ward. In the plan (p. 126) it is convenient for both wards equally—in fact, could not be better. The other requisites named are extremely important.

the beds, and the like.

The scullery should contain a linen-press, small range with oven, hot closet at side of fire-place, sink with hot and cold water, &c. A small compartment should contain a slop sink for emptying and cleansing bed-pans, and a sink about six inches deep and sunk below the floor which is intended for filling and emptying a portable bath, and which when not required for this might be used for soaking linen, &c.

"Small range with oven, hot closet at side of the fire-place," certainly ought not to be in the scullery. This should be, in our opinion, in the nurse's room.

In addition to the two sinks mentioned, which are excellent, there ought to be a third, close to the latter, made of earthenware, in the form of a basin, with waste cock. In this basin is to be kept disinfecting fluid, so that all soiled napkins, cloths, &c., on being removed from the patient, may be at once immersed in it.

Beyond the scullery, so as to be as far removed as may be from the traffic of the main cor-

Here, again, we avoid the expense of a bye-ward; it is unnecessary, and the risks attending it are therefore avoidable.

ridor and the noises of the delivery-ward, should be the bye-ward, with not less than 2,100 cubic ft. of contents.

8. SCULLERY, LAVATORY, W. C.

The necessary consumption of hot and cold water is at least double or triple that of any general hospital. Sinks and w.c.-sinks must be everywhere conveniently situated.

There must be a scullery to each four beds; the scullery must needs be much larger and more convenient than in a general hospital. There is often more work to be done by night than by day

8. It is only in exceptional cases that there is so much more work as is herein stated. In the vast majority of cases, a lying-in woman with her child does not require nearly so much attendance or nursing as an average case of sickness does, as, *e.g.*, Rheumatism. But if we take amputations or other serious operations, the nursing is far heavier and more trying.

Sinks and w.c.-sinks, however, ought to be well placed. (See plan.)

In the plan there is a scullery and w.c. to every two beds.

in a lying-in institution.

All the ward appurtenances, scullery, lavatory, &c., must stand empty for thorough cleansing, when the ward to which they belong stands empty in rotation, for this purpose, and must not be used for any other ward. For each four-bed ward, or group of four one-bed wards, or for each floor of each pavilion, there must therefore be one scullery with a plentiful unfailing supply of hot and cold water, with sinks and every convenience. The reason for this is two-fold :—

1. To allow each scullery, with the other

All good.

In addition, the nurse in charge is responsible for the condition of cleanliness of scullery, lavatory, and w.c.

The superintendent should make it her special duty to enter these apartments at least twice a day, and the master or his assistant at least once daily. In this respect asylum management and order are far ahead of anything, so far as we know, in our present hospital system. (See page 151.)

This applies, of course, to hospitals on the usual plan.

ward offices, to be thoroughly cleansed and whitewashed, with its own group of four beds.

2. The work in a scullery and in all the other ward appurtenances, day and night, night and day, is many-fold that which it is in a general hospital scullery.

See page 145.

Besides this, general hospital patients ought never to be allowed to enter the scullery.

As a rule.

In a lying-in scullery the infants, most exacting of all patients, must frequently be in the scullery.

In the plan advocated, we do not think this so necessary; the nurses' room might be made available.

Even under the very best circumstances there are many lying-in cases among weakly

women where the mother's state is such as to render it necessary for a 'crying' infant to be washed and dressed elsewhere than in its mother's ward. These infants are best washed, in that case, in the scullery, which must be so arranged that infants can be washed and dressed without being exposed to a thorough draught, and that nurses and babies may not be hustling one another.

Just so, we have provided for this in the nurse-room, not in the scullery. The nurses' room is well adapted, as in the plan, for this purpose.

There must be a good press in each scullery. A supply of clean linen and other necessaries will have to be kept in each press, in each scullery.

Yes, essential.

The slop-

By this we understand that there should be a large

sink and other appurtenances must be arranged so as to make allowance for the fact that the going backwards and forwards for water (hot and cold), or to empty slops in a lying-in institution—where half the patients can do nothing for themselves, and the other half (the mothers) are supposed to be ready for discharge when they can go to the ward offices for themselves—is more than it is in general hospitals.

waste-pipe and a good supply of hot and cold water: this is requisite.

Fixed baths are not necessary. But there must be means for filling with hot water movable infants' baths, at all hours at a moment's

Granted

notice, since an infant's "life" often depends on immediate facility of hot-water bathing.

There must be means always at hand for any emergency.

And this, besides the daily regular night and morning washing of infants.

Granted.

There must be also a movable bath for each ward for the lying-in women, with the means for supplying it with hot and cold water, and for emptying it. Lying-in patients are not able to use either fixed baths or lavatory.

Glazed earthenware sinks should alone be used, as being by far the safest and cleanest.

9. HOW TO VENTILATE LYING-IN WARDS.

The best ventilation is from opposite windows. Each window should be in three parts, the third or uppermost to consist of a flap hung on hinges to open inwards and throw the air from without upwards.

Inlet valves, to admit fresh air, and outlet shafts, to emit foul air, must be added to complete the natural ventilation.

9. This is an intricate subject, and too long to enter here upon in detail.

The subject of ventilation is a difficult one, and one about which it is not likely we can come to anything like an unanimous opinion; it is not well understood. The principle is to get a sufficient egress for foul air, and an ingress for pure atmospheric air, and in such a relation that there is a healthy condition always maintained. We have merely indicated in the plan where the special apparatus will be placed.

To adjust the inlets and outlets so that there is a constant ingress of atmospheric air and a continuous egress of foul air is the cardinal consideration in the subject of ventilation. The air should constantly be kept in motion as far as possible.

We lately paid a visit to the celebrated prison of Newgate, and, through the kindness and courtesy of the Governor, were shown over the building. It so chanced that we had to go to King's College Hospital immediately thereafter. We could not resist drawing a comparison. We believe this is one of the best hospitals in London, and yet we have no hesitation in saying that hospital managers, and all who have charge of the ventilation, cleanliness, order, and, indeed, the whole sanitary arrangement and management of hospitals, should **visit** this gaol or "lion of London," a lesson may be taken from thence. There they may learn what separation of the inmates and cleanliness can do. There they may see what ventilation is. The air there whistles freely around the curious old courts, which are so beautifully clean. This, like the "**Blue-Coat**" School, to which we have already alluded (p. 36), is in the very heart of the City of London. Does this not show that construction and management have an important relative bearing upon effects arising from aggregation?

Are our poor honest sick folk to be less considered or less benefited by modern sanitary appliances and reform than the vilest of the vile criminals in the statute book, the drunkard, the thief, the pickpocket, the murderer? (See p. 101.)

10. FURNITURE, BEDDING, LINEN.

As little ward furniture as possible. As much clean

10. Perfectly right, within limits, of course.

linen as possible.

A very large and convenient clean linen store, light and dry, must be assigned to the matron : very much larger than would be required for a general hospital ; but no general hospital in London supplies a good standard for such.

Good ; but what a fearful state the hospitals in the "centre of civilization" must be in to make such an accusation possible.

There must be in each scullery, besides, a clean linen press.

Yes, we have stated this previously, and it will be seen in the plan.

There should be a very ample and convenient place for bedding.

Yes, in the plan this is brought out on the basement where there is a large store.

Mattresses, blankets, and the like, have to be renewed, taken to pieces, and washed—especially those used in the delivery ward — many times oftener

Mattresses (chaff) should be new to each delivery, blankets washed **each** time that they are used. The mattress should be made of some cheap material which may be destroyed after it has been once used. This is one means whereby we may hope to lessen the metria mortality.

than in any general hospital.

The rack for linen should be along the middle of the linen store.

There should be a space for a bedding-rack along one end, taking about 3 ft. 6 in. from the length of the room for linen.

This, perhaps, may vary according to circumstances.

Space for some spare mattresses and bolsters will be necessary; and they should never be stowed near to a lift.

In the plan we have given we do not think there is any likelihood of this occurring.

A linen-store requires thorough lighting, ventilating, and warming. Three windows are better than one. The linen must, of course, be kept dry and aired.

Most requisite, except the three windows.

11. WATER SUPPLY, DRAINAGE, WASHING.

Unlimited hot and cold water supply, day and night, should be laid all over the buildings.

11. Agreed.

All drains and sewers must be kept outside the walls of the buildings, and great care should be bestowed on trapping and ventilating them, to prevent foul air passing into the institution.

This is an important matter, and cannot be too strongly insisted on. The sewer pipes should be so constructed as to enable them to be inspected and cleaned outside the cottage altogether. By referring to the plan it will be seen that there are proper ventilating shafts to the sewers, drains, and w.c., which we need not here describe in detail. Suffice it to say that particular attention will be paid to the sanitary department.

The washing in a lying-in institution is, it need not be said, very large, and should be conducted quite at a distance.

It is true that the washing is large, and it ought to be conducted separately, and away from the cottages, but "quite at a distance" is a totally different matter. This must be dependent upon other circumstances.

Sink-baths, for immediately putting in water soiled

Miss Nightingale's twelfth point is omitted, because it refers to the medical officer's room, dispensary, &c., all which, in an institution such as we advocate, are entirely different. We ought to have, of course, proper accommodation for the medical officer, for the assistants, and for the medical pupils in the central building, and away from the cottages, but, of course, suitably connected with the cottages. There must, of course, be a proper dispensary, but here it is not desirable to enter into details upon such matters as these.

linen are necessary.

13. SEGREGATION WARD.

A ward is unfortunately necessary, completely isolated, where a sick case, brought in with small-pox or erysipelas, or the like, could be delivered and entirely separated from the others; or where a case of puerperal fever or peritonitis (though such never ought to arise after delivery in a properly conducted and managed institution) could be transferred. But if, unfortunately, puerperal fever should appear in the hospital, no new admissions should be allowed until the build-

13. A "segregation" ward is unnecessary in a "segregation" hospital. When a case such as is referred to here requires special care, remove the other cases to other cottages by the aid of the lift, as seen in the plan, and tell off a special nurse, or nurses, for the case which specially requires separation, care, and watching. Each cottage may be rendered a segregation ward easily and completely.

Miss Nightingale in another part of her work states:—

"These facts appear to show that subdivision among lying-in cases has a certain influence in warding off mortality.

"But, on the other hand, the death-rates among lying-in cases in particular hospitals are not always in the ratio of the number of occupied beds. A few illustrations of this will suffice.

"Thus, in the year 1861 there were in the Rotunda Hospital, Dublin, 1,135 deliveries, on which the death-rate was 51·9 per 1,000. In 1828 the deliveries were 2,856, and the death-rate 15 per 1,000. In the four years 1830 to 1833, the deliveries varied from 2,138 to 2,288, and the death-rates were a little more than 5 per 1,000. In Queen Charlotte's Hospital the highest death-rate occurred in 1849, during which year there were 161 deliveries. The death-rate was 93·2 per 1,000, while in 1832, with 217 deliveries, the death-rate was just one-tenth of this amount."

Dr. Heller informed us that Grünewaldt had written a paper on this subject about a couple of years ago, but which we failed to find here. He, however, had read it carefully, and felt justified in saying that Grünewaldt stated that the system adopted in St. Petersburg for the last eight or ten years had diminished the puerperal mortality. The system was this:—That private buildings were taken or rented in every *quarter*, particularly the poor and remote districts of the city, and that these were turned into small hospitals, each capable of accommodating from 120 to 200 patients a year; the object being that when any infectious disease broke out in any one of these small hospitals that one should be forthwith closed, and no more patients admitted till disinfected and considered safe to admit patients again. In principle and practice there can be no doubt of the wisdom of such a course. It is the best for securing safety in the first place, and, in the next place, it is the best fitted to supply constant adequate accommodation for the women who have recourse to hospital relief. Before knowing of this practice, we had seen the wisdom of it, and the plan we advocate has these considerations, with others, as features of paramount importance.

If it can be shown that the mortality in Russian hospitals has been brought down from a disgracefully high figure, as seen on page 54, there can be no more convincing or conclusive proof that this is a great step in the right direction. It will not do, however, to jump at conclusions even here from the data of a few years—there are so many things that may affect data.

ings have been thoroughly cleansed, lime-washed, and aired.

The segregation ward must have a nurse's room, and a provision of sink, slop-sink, &c.

14. KITCHEN.

The kitchen should be well placed, conveniently near, yet sufficiently cut off from the main corridor by a neck of passage and intermediate offices.

SITE.

* The site of a lying-institution must be open, airy, surrounded with its own grounds, not adjoining or near to any other building, still less to any hospital or

We must know the class and number of cases that are admitted into these small hospitals as compared with the former large lying-in hospitals, and the purposes to which these large hospitals are now put. We ought also to know the cubical air-space in both. There can be no doubt that in these small hospitals the same number of patients may be annually admitted, though one or two may be continually closed for cleansing, whereas in a large hospital the whole building must be closed when metria prevails in it. This will tell on the numbers admitted in the course of the year in the latter, scarcely at all in the former. Therefore the metria death-rate on this account must be proportionately higher in a hospital than when the hospital is separated into a number of small institutions and kept open the whole time. For example, let us suppose twelve patients die almost consecutively in a large lying-in hospital, admitting say 2,000 patients annually; forthwith the hospital is ordered to be closed; therefore 2,000 patients cannot be admitted in the course of that year. If the same hospital were broken up into twenty smaller ones, and in two of the twenty, say twelve patients die consecutively, these two only are closed, the eighteen others are open, and the 2,000 patients may be admitted in the year. The death-rate would consequently be lower in the latter than in the former.

The breaking out of metria or a contagious disease, whereby the hospital has to be closed, accounts for a slight difference in the number of patients and the high death-rate to a limited extent. To illustrate this, let us look back to Table XX., p. 60, and, *e.g.*, take the years 1830-33, when the death-rate was about **five** per 1,000, with the patients varying from 2,138 to 2,288; suddenly in 1834 the death-rate mounts up to **sixteen** per 1,000, next year to **seventeen,** next year to **nineteen,** the patients varying from 2,024 to 1,810. But then it may be said metria broke out and we were obliged to close the hospital, and therefore there were fewer patients admitted, and consequently the death-rate must be relatively higher. No doubt to a very slight extent this is true. The breaking out of metria would interrupt the continuous stream of admission of patients, but this cannot affect seriously the comparison, for if we look at Table XXI., p. 62, we shall there see at a glance that the admission of patients into the Coombe Hospital is not affected by the breaking out of metria. We shall there see that when metria was **absent** there were fewer or fewest patients admitted, and that when metria prevailed most more patients passed through the hospital in those years.

14. Good; but avoid corridor. All that is requisite is shelter (see plan showing back elevation), and there may be lifts to the different cottages, as represented in plans.

* Excellent.

Miss Nightingale elsewhere states:—

"This question is the more important because we

any nuisance, or source of miasm. But it must be in the immediate vicinity of any large centre of population from which the lying-in women come.

now know that construction and arrangement of buildings exert a notable effect on the death statistics of general hospitals. It is at last universally admitted that airy open site, simplicity of plan, subdivision of cases under a number of pavilions, large cubic space, abundant fresh air, mainly from windows on the opposite sides of the wards, drainage arrangements entirely outside the hospital, are essential conditions to the safety of all general hospitals. But, as already stated, it is likewise admitted that lying-in women are peculiarly susceptible to blood-poisoning."

And this involves the question of receiving-rooms.

Yes.

Should there be a receiving-room as well as a waiting-room?

As a rule.

The lying-in woman's name is put down for admission some time beforehand.

Lying-in hospitals differ as to their rules whether or no to admit women any time before labour is imminent. If they are not so admitted, they often have to be sent back again home.

No hard-and-fast rule can be laid down on this matter. We can perceive advantages and disadvantages in admitting women days before labour, and also, not till labour is progressing. On the whole, admission a few days before labour is no doubt the best for the women, if it were expedient.

It is now believed to be the soundest principle that the fewer days a lying-in woman spends in a lying-in institution, beyond the time she is actually under treatment, the better; and this involves that she should not be admitted till labour is imminent, even at the risk of the infant being born in cab or lift (which has happened).

This is explainable. Much will depend on the quality and physique of the patients. Some will do well by being in for a time previous to labour; others will do badly. The former are of the poor class, who get into better health and strength by care and rest during their stay; the latter have too little work and exercise, and may grow fat and assume an inflammatory and sthenic diathesis.

If possible extremes ought to be avoided.

Lying-in institutions must (unfortunately) be, therefore, in the immediate neighbourhood of great towns or centres of population.

Evidently.

[Even those London Boards which are building their excellent new workhouse

Necessarily, because it is more convenient.

infirmaries in the country are forced to keep their lying-in wards in the old workhouses in the town.]

The difference, however, as has been shown by our statistics, is not so great between the mortality of women lying in at home in the country and in the town as should make us pronounce against lying-in institutions, in great centres of population, provided they have a large and entirely isolated area completely to themselves, perhaps a proportion of two acres to fifty beds. But this involves another question.

This is the key precisely for unlocking the door, so far as we can see, which has not yet been tried. Not only should the hospital be built on an isolated piece of ground, but the patients themselves should be isolated.

In the Ground Plan (p. 126) we have three acres for fifteen to twenty cottages, *i.e.*, sixty to eighty beds.

A large proportion, alas!

No doubt this is true, but the workhouse is not constructed for confining women, and taxes ought not

of workhouse lying-in women (we have seen two-thirds at Liverpool) are unmarried. Of these many have no home.

It is difficult to send these women back again, even if labour is not actually imminent. And it is impossible to send them out after delivery till recovery is fairly confirmed.

In workhouses the question is solved by women being admitted into the body of the house during pregnancy, and discharged into the body of the house, if not to their own homes, when quite convalescent.

In Liverpool workhouses fourteen days

to be levied for this purpose. These unmarried women should go to a proper lying-in hospital; and the institution ought to be reimbursed in some form or other for the kind offices it performs to these unfortunate women. There are in England 42,155, and in London 4,787. We have seen (p. 124) that there are only 1,300 women annually delivered in our metropolitan hospitals altogether. We are told by inference (p. 139) that many have "hurried hundreds of miles to the only refuge open to them," *i.e.*, Queen Charlotte's Hospital.

True. They could be made to work or do something to help the institution during their waiting time.

Precisely.

We know that it is far less in some London workhouses.

after labour, the lying-in women are thus discharged. Fourteen, eighteen, twenty-one days, are the average of a woman's stay in the lying-in division in London workhouses.

A soldiers' wives' hospital takes in no unmarried women to lie-in.

Civil lying-in institutions almost invariably have to make exceptions and take in unmarried women.

In workhouses they are not the exception—they are the rule. Married women are the exception.

It is to be observed that married women will rarely come in an hour before, or stay an hour

Worse even than that, the law does not allow a section of the married women (a class called "married without leave" or "not on the strength") into the hospital at all. Where are these to go, for virtually they are deserted—they often are in reality? This is a difficult question, on account of military law, discipline, and order.

Three of the four in London do not.

Quite true.

See page 64.

As a rule.

There are some who will remain long enough, if allowed, but the majority do not.

after it is necessary, in any lying-in institution.

Ten or twelve days is "the average period of hospital treatment" in Colchester, Woolwich, and other soldiers' wives' lying-in hospitals. "Women of this station of life cannot, as a rule, be prevailed upon to submit to longer detention" it is added.

Generally this may be enough.

The average number of days in King's College Hospital lying-in ward was sixteen. None were permitted to leave under fourteen days. Twenty-one days were allowed in ordinary cases. It is feared this might be too long; but so very many

weakly, half-starved women sought admission, that to send some away sooner was "to ensure a breakdown," it is stated.

*In a civil lying-in institution it would not be by any means desirable to exclude single young women primiparæ; it would be grievous to some of these poor things to be sent among the (often hardened) wretched women of the workhouse. The whole question of these poor young women—unmarried mothers of a first child—is full of difficulty. It would never do, morally, to make special provision for them. And for this very rea

For these, no doubt, the rest, care, better food, &c., of hospital would be of incalculable benefit.

*This is said with much fairness, and great weight and consideration. It is an opinion which ought to be more generally known and acted upon, but no less than three out of the four lying-in hospitals in London exclude unmarried women.

We cannot help saying a few words—it is not the place here to enter fully on the subject—of the comparison made between the greater puerperal mortality among the poor than the rich. This idea pervades most of the writings of those who have discussed the question we have been occupied with; particularly was this the case at the great Dublin debate. The key-note is sounded in a passage of Dr. M'Clintock's, the other commentators concurred, and not one of them contradicted the principle involved.

"It must be owned," Dr. M'Clintock stated, "that one objection of a serious kind attaches to these statistics (*i.e.*, the statistics of distinguished physicians practising in the upper and wealthier ranks of society), namely, they are derived entirely from the middle and upper ranks of society. But, if among women in comfortable and luxurious homes—with every want supplied, and lacking no care that medical skill could supply or money command,—if, I say, among this favoured class, the mortality in childbed amounts to 1 in 134, what must it be among the lowest class in urban society, in the wretched abodes of poverty, with all its attendants of filth, impurity, and want?"

Beautifully as this picture is described, we have no hesitation in stating that if the truth and real state of the case and the facts were known—at all events, in this country—we should find that the puerperal mortality is far lower among the poor than the rich, notwithstanding that the latter have all that money can command, but it is owing to the habits induced just from that very circumstance that the tendency to risk arises as a rule. We think the number of "ladies" who die in childbed out of all proportion to the number of the poor who die in childbed. Careful observation and analogy will convince any one that this must be so. There are some things in which there is a uniformity in nature, just as surely as there are others marked by diversity. What takes place among the lower animals? A breeder of any stock will tell you at once, that the higher or finer an animal is bred the greater is the risk attending parturition, unless care be taken. On account of this law it is affirmed that there is more risk attending females at childbirth in civilized countries than females at childbirth in barbarian countries. We do not, however, say that the mortality is actually more in one than in the other;

son we seem bound to receive such, conditionally, into well-regulated lying-in institutions, and afford some kindly care to prevent, at the very least, their sinking lower. But it would not be right to leave any admissions for single women in the hands of any young assistant, or morally inexperienced person.

*The principle appears to be that if pregnant women are to be received some time before and kept some time after delivery, the excess of time should not be passed in the lying-in wards, but in separate accommodation.

we have not the means of settling that question; but we say that, all things being equal, it is generally believed, the higher the breeding and the richer the feeding, the greater the risk in parturition.

But, further than this, it would not be difficult to prove that higher or richer feeding even in the same breed produces correspondingly greater risk. Take sheep as a familiar example. Ewes which go beyond or later than the usual lambing season are sometimes (for four or six weeks previous to their expected time) put in upon richer and better pasture, for various reasons, but perhaps chiefly because they may not be strong, and that when the lambs come the mothers may have a greater and better supply of milk, so that, if possible, the lambs may grow up rapidly, and at the "spening" or selling time they may not be "cast" or "shot." It is not too much to say that 30 per cent. of the ewes so treated die in parturition. Why? because they have got too fat on the rich pasture, and an attack of inflammation or other complication carries them speedily off. The same law affecting parturition is well illustrated in our pet animals—our well-cared-for dogs and cats. So it is with well-to-do and the poor women. Is holy writ not emphatic upon this matter? "The Egyptians made the children of Israel to serve with rigour." "But the more they afflicted them, the more they multiplied and grew." "The Hebrew women are not as the Egyptian women; for they are lively, and are delivered ere the midwives come in unto them." "The people multiplied and waxed very mighty." What a victory the poor hard-worked Hebrews had over the rich Egyptians, who had ease and every comfort that money could command! But with all the skill of the midwives, and with all the ease and money of the Egyptians, the probability undoubtedly is that there was a far higher puerperal mortality among them than among the poor Hebrews—the record certainly states fewness in the number of the former as compared with the latter.

In Britain we think the habits, temperament, society, life, in the upper and wealthier ranks (and also in the middle) bring risks to women in parturition, incomparably greater than occur in childbirth among the working and poorer classes of the population.

*This ought to be the case from considerations other than those stated.

We shall close this chapter with a consideration of the choice of a site for such an hospital. In trying to solve this question, we must prominently bear in mind that the first function of an hospital is to restore the sick to health and strength in the shortest possible time, and to obtain the smallest mortality. This consideration must, or ought to, take the precedence of all others, such as cheapness, convenience, beauty, situation, and the like. What, then, are the requisites to attain this end? We must endeavour to get as pure, fresh, and dry air as possible. The soil ought to be gravelly or sandy: these are the best because they are in a manner self-draining. Clay subsoils should be avoided, because they are retentive, and the atmosphere is always more or less cold and damp. River-banks, valleys, marshy or muddy ground, made ground, old grave-yards, or land charged with organic matter, should be avoided. It is very important that the main sewer should not only be deep, but have a good incline.

These are the first and prominent features in helping us to choose a site for an hospital where clinical instruction is not an unimportant object, as well as speedy restoration of the sick. It is much more instructive to watch the recovery from, rather than the death or lingering in, sickness. More cases would naturally be brought under the notice of the pupils in the one case than in the other.

We are more likely to get pure, fresh air in the outskirts rather than in the town; land is also cheaper in the former. We have therefore to consider the most convenient place possessing the requisites already named. There is every probability of obtaining land at a more moderate cost in the outskirts of a great city like London, where there is less population, where the atmosphere is purer and the light better, and where the air will be more freely circulated and less obstructed.

Having obtained the best site, we then proceed to consider the best plan for an hospital of the kind intended. This will be seen in plans already given, whereby we endeavoured to have the least possible agglomeration of patients, the greatest reasonable cubic space for each, the best and most approved ventilation, most light, and fresh air and safety. The cottages should be arranged round an open piece of ground as represented on the plan showing the ground, with offices detached.

The plan of building the cottages is simple; and the cottages being about 15 feet apart from each other, there is every likelihood of ensuring a free circulation of air around them, and there will be no angles or corners to admit of stagnant air. The sewers and drains are all outside, and detached from the walls of the cottages; the sewers have a proper

ventilating apparatus of their own. Provision will also be made for inspecting and flushing them.

Garden ground, with properly drained and gravelled walks, sheltered seats for convalescents, &c., would add materially to the value and usefulness of such an institution. This might be secured as illustrated in the plan.

We conclude this chapter with the following extremely good description, by a well-known writer, who represents a *certain* phase of what may be seen in London by any observer, and it has a more or less direct bearing upon the present subject. We are assured that no one will be better pleased than the writer, should it, perchance arrest the attention of some benevolent person who will help forward a work such as is contemplated.

"But does rich Belgravia, tidy Islington, airy Sydenham, or commercial Regent Street ever think of what goes on at the back of many a lordly mansion and glittering warehouse? I can pitch my censor's tent almost anywhere in the midst of these 74,880 acres and draw the same dismal and stifling picture. A stone's throw from Victoria or Paddington or Euston Station—from Manchester Square or Finsbury Circus, it matters not where—the back streets and alleys are alike all over London. And what goes on there? A hot afternoon, gutters swarming with children of all ages, feeding on garbage, human scavengers; women, broiled out of their close, pestilent rooms, stand at the doors or sit on the hot steps—swearing, drunken slatterns; the sick groan within, often untended; the young mother often forsaken; the dying often helped out of this world with a shake or an over-dose, as they say 'His room is worth more than his company'; the men drinking at the frequent publics, the women too; everyone jostling everyone; the streets reeking; the brick walls—against which squat workmen out of work, and women unemployed, or worse—heated through like an oven; a heavy drought and plague-mist in the air, through which the rays of the westering sun fall luridly—and no escape. Amusements? A free fight—between men or women, or both—a funeral, with mourners all drunk and weeping, or in hysterics of laughter—an organ man, the one bright feature, surrounded by the dancing children.

"What do these human ant-hills want? Will you heal their malady with a tract and a soup-ticket? You might as well throw a lucifer-match to a drowning man in the ocean. Why are they diseased and drunk? Do you not see they must be so? They have got no air, they cannot breathe, they cannot get away from each other; they are

huddled together like mites in a cheese—they must fight; they are broiled out—they must drink. Home? Home means Hell to them; one, or at most two, rooms, seven or eight children, mother sick, two children down with fever, all squalling or quarrelling—after school hours at least—place reeking with washing or unwashed rags, filthy boards. To this the tired labourer comes home, and home means Hell to him. And where is Heaven? Why, the gin-shop round the corner. Out of work ge goes there to drink—in work he comes back there to drink. No escape? Yes, that is his escape. And from these streets and back-alleys which line the whited sepulchres of the rich, spreads the crime that weighs down the poor-rate, fills the prisons and workhouses, and comes the disease that floats by contagion into the open windows of the rich mansions, untouched by the sufferings, but not untainted by the fevers of the poor. And thus the stern justice of inexorable law is avenged. The rich, who in their comfort will not think or feel or act or give the poor in their vicinity space, air, health, suffer the plague which they might stay. Fresh air means power to resist disease. Fresh air means exercise and healthy occupation and amusement. Fresh air means freedom from drink, and quarrelling, and degradation. And this the wealthy, who have it, will not give the poor, who have it not. Do not call me unpractical and hasty. Read to the end, and I will state my case fully—'nothing extenuate nor set down aught in malice.' And the public in London shall decide whether the rich are not guilty—whether there is not much to be done which they can do. The rich are often very kind—very liberal—but thoughtless—hasty; they do not *attend* to these things."

THIS DESCRIPTION IS WORTH READING AGAIN.

CHAPTER IV.

MANAGEMENT OF LYING-IN HOSPITALS.

We have seen in the previous chapters that women confined in hospital have a **higher** mortality, and, when taken in the mass, they die in an unusual proportion in hospital, as compared with those delivered elsewhere. Such is the fact, as revealed by a careful examination of the statistics of the whole question. By the kind and ready aid of Mr. Humphreys, of the General Register Office, we were enabled to state this difference approximately in figures (pp. 88, 90, 98). If the same proportion of metria prevailed in hospital which prevails outside, then we should have a death-rate of 1 in 110 instead of 1 in 69, which it is at present. We have also seen that there is about 25 per cent. more deaths from the accidents of childbirth, &c., among women delivered in hospital than among women delivered at home—for these the hospital is not only not accountable, but many more difficult operative cases would perish, unless the superior skill, &c., of the hospital physicians rescued them. The hospital, however, is blamable in some way or other, and must be held accountable for the excess of metria—a communicable and contagious disease. It is therefore a matter of cardinal importance to adopt serious hygienic precautions in order to lessen the mortality from this scourge.

Dr. Farr on Aggregation and Management.

"The mere aggregation of people together in close apartments generates or diffuses the zymotic matter. Thus, place lying-in women in close proximity to each other, or mix them up with the patients of a general hospital, and they died of puerperal fever. Place many wounded men in a ward where cleanliness is neglected, and erysipelas, pyæmia, gangrene spring up; imprison men within narrow walls, or crowd them in rooms, and typhus breaks out. The general and special hospitals of the country have been until quite recently erected without any special reference to the dangers accruing from the assemblage of great masses of sick people within the walls of one building,

so that the efforts of the most skilful medical doctors are frequently defeated." Again, Dr. Farr says—"The mere accumulation of masses of living people within narrow limits either generates or insures the diffusion of epidemic disease." Again, he states—"The suppression of the generating beds of disease in unhealthy populations can scarcely fail to be efficacious. To suppress plague, suppress the wretched sanitary condition of Egypt; to suppress yellow fever, go to St. Thomas, New Orleans, and its other feeding grounds; to put a stop to epidemic outbreaks of cholera, cleanse the waters of India, and improve the condition of the population; to extinguish enteric fever and typhus in our cities, extinguish the rookeries." And again it is stated:—"30 to 90 per cent. are attended by midwives, often ignorant, often incompetent, and unable to deal with any difficulty. In Wales, Lancashire, Yorkshire, and other northern counties the mortality in childbed exceeds the average."

"The introduction of the midwife or skilful accoucheur, by a sort of antinomy, is attended by dangers to be particularly guarded against; a fever attacks puerperal women, and that fever of a most contagious kind. It spreads from bed to bed in lying-in hospitals. It is conveyed by the nurse, by the accoucheur, in private houses to other women, and kills them. Of this fever 1,138 mothers died annually in the 25 years 1848-72."

And again Dr. Farr says:—

"These deaths are very deplorable. They require to be watched, as they are from various causes, some of which are under control. Metria has been frequently induced by collecting many women into the wards of lying-in hospitals. That evil has been to some extent remedied, but it still exists. A very common cause of death is the want of skilled midwives, to which I have before called attention. A mother's life often hangs on some simple act which can be easily performed by a woman who understands the mechanism of delivery. In the absence of that skilled hand to perform that act she dies, and carries out of life with her the unborn child."

Dr. Kennedy on Mortality from Mismanagement.

"We are justified in concluding that the general treatment is the same in both small and large hospitals, the only difference being the congregating large numbers of parturients into the same building in one case and not in the other.

"Let us further bear in mind that the increased mortality bears

nearly a direct proportion to the increased numbers inhabiting each building. What, then, are the comparative results with the small hospitals as our standard? We shall first take the larger hospitals in detail.

"That in the Liverpool hospitals, 2 out of 3 die who should not; or, in other words, the deaths, by proper management, should be reduced to one-third of their number.

"In the London hospitals, 3 out of 4 die who should not, or the deaths should be reduced to one-fourth of their number.

"In the Coombe Hospital, 3 out of 4 die (on their present calculation) that should not, which calculation extents over a period of the last seven years, and the deaths ought to be reduced to one-fourth of their present numbers.

"In the Glasgow Hospital, 4 out of 5 die who should not, or the deaths ought to be reduced to one-fifth of their number.

"In the Dublin Lying-in Hospital, 8 out of 9 die who should not, or the deaths ought to be reduced to one-ninth of their present numbers.

"In the Midwives' Institution, St. Petersburg, 10 out of 11 die who should not, or the deaths ought to be reduced to one-eleventh of their their present numbers.

"In the hospitals generally in St. Petersburg, 12 out of 13 die who should not, and the deaths ought to be reduced to one-thirteenth of present numbers.

"In Vienna hospital, 10 out of 11 die who should not, or the deaths ought to be reduced to one-eleventh of their recorded numbers.

"In Paris general hospitals, 17 out of every 18 died who should not, or the deaths ought to be reduced to one-eighteenth of their number.

"In the Paris lying-in hospital, or maternity, 20 out of every 21 died who should not, and the deaths ought to be reduced to less than one twenty-first part of their number.

"Or if we take the mean of the death-rate of the eleven great hospitals as denominated above as 1 death in 44, and suppose the magic of our eloquence to reach and influence their managers in establishing small hospitals, or properly constructed huts, instead of their present large hospitals, the saving to human life by this simple alteration would prove immense."

We have already expressed our opinion that it seems still premature to blame the hospitals for this wholesale sort of slaughter. The "seventeen learned doctors" of Dublin were unanimous in refuting the accusation. The ratio mentioned is an excessive one, as the figures will show.

DR. MATTHEWS DUNCAN ON MANAGEMENT.

"They (Dublin accoucheurs) consider a well-managed maternity hospital to be, on the whole, a blessing, not a curse, to the class of women who resort there in their time of need.

"There can be no doubt that in lying-in hospitals the proportion of the mortality due to metria will be far higher than any of the figures I have cited indicate. Bad arrangements will increase the proportionate quantity of metria mortality, whether in hospital or in private practice."

There can be no better preface to the following comments than Miss Nightingale's own words—"These introductory notes, collected and put together under circumstances of all but overwhelming business and illness, are now thrown out merely as a nucleus, in the hope that others will be kind enough to supplement, to add, and to alter; in fact, only as a hook with a modest little fish on it—a bait to catch other and finer fish.

"The facts themselves, the nucleus, have been made as correct as it was possible, and as would have been done for a finished work. But the facts themselves are only put forth as feelers—feelers to feel my own way." We have endeavoured to suggest some alterations in the same modest spirit that is evinced in the above passage, and in order that the effect may be more complete, we have taken the plan of adopting her views, and expressing slight variations, as formerly, in the parallel column. These of course we offer as mere suggestions.

MANAGEMENT.

(MISS NIGHTINGALE.)

Construction, however, in a lying-in institution holds only the second place to good management, in determining whether the lying-in patients shall live or die. And without such

Comments on Miss Nightingale's Views.

We cannot quite concur in placing construction second to management. Each has its place, and one cannot bear to dispense with the other, nor can one displace the other.

management; no construction, however perfect, will avail.

And the first elementary principle of good management is to have always one pavilion of four or eight beds, according as it is of one floor or of two, standing empty in rotation for thorough cleansing. *A fortiori*—one delivery pavilion on each floor is always to be vacant alternately.

The pavilion to be in rotation unoccupied for the purposes of cleansing must necessarily be the whole pavilion, with all its sculleries and ward offices, since the process of cleansing is—

We should advise the whole room to be washed immediately after it is vacated, and the windows left open day and night, night and day, for two or three days. In the case of metria, we think a new process of disinfecting, and destroying the morbific influences of contagion and infection might be advantageously practised, to wit, raising the temperature to a very high point by directing a jet of steam at any required degree of heat to the different parts of the room, and thus making the room hotter than an oven. Surely this, if anything, ought to kill the germs of contagion.

We consider there are apparent and obvious and real advantages in the plan of hospital here advocated, superior to any that we have seen or known of for lying-in purposes.

turning out all the little furniture a lying-in ward ought ever to possess, bringing in lime-washers, possibly scrapers and painters, leaving door and windows open all day, and even all night.

Every reason for having each ordinary pavilion ward completely separate and individually pavilionised, applies with tenfold force to the delivery ward. Each must be complete in itself, with all its appurtenances and bye-ward for extreme cases, as a little pavilion. There is no possibility for properly cleansing and lime-washing the delivery ward not in use

Here again comes in the advantage of the system of complete isolation and separation. No delivery ward is required. How is it possible for those hospitals to escape where the delivery ward is almost in constant use ?

unless this be the case.

Does not exist in the institution advocated.

One delivery ward, however spacious and well arranged, constantly used, would be a centre of deplorable mischief for the whole institution. This makes two deliverywards for eachfloor of the institution indispensable, to be used alternately for the whole floor at given periods.

Good for those to whom it applies. With us, one ward or room would be used alternately.

N.B.—Liverpool workhouse, with 25 lying-in beds, exclusive of delivery beds, has had an average of 500 deliveries a year for eleven years. A civil lying-in hospital in or near a large town is generally just as full as it is permitted to be. Five or six

hundred deliveries or more a year might be reckoned upon; occasionally three or four deliveries a night. Sculleries will be always in use day and night. All this renders it imperative that an inexorable rule should be made and kept, viz.: that every lying-in pavilion should be vacant in rotation, each delivery pavilion alternately, for thorough cleansing.

2. The second elementary principle of good management is to remove every case of illness arising in the institution, and every such case admitted into the institution, at once to an

This is limited as it applies to us. We first prevent illness, if possible, arising. If, perchance, it should arise, or if a patient comes in with it, then we set apart one cottage for the case, or place her in one upon her admission.

isolated sick ward or infirmary ward.

This is **must**, not may.

Though we should have no puerperal fever or peritonitis in a building of this make, yet, unfortunately, other institutions will send in (say) erysipelas or small-pox patients seized with labour.

This is a rather astounding and somewhat incomprehensible statement. Jenner's invaluable discovery "should" certainly exterminate small-pox, if the means are used. But hitherto we have no such preventive measures for stopping puerperal fever or peritonitis. We have seen that one set of causes operate the same in as out of hospital.

Sad experience tells that this unprincipled practice has often proved fatal to many other inmates of the lying-in institution, turning an institution into a hospital.

Granted.

Every sick case should therefore be completely isolated, in a separate sick ward from the lying-in women. And if

Correct. All our "wards" would be "completely isolated."

admitted before delivery, her delivery should take place in this separate ward.

This ought to be the rule always.

N.B.—The nurse's dinner and meals may be prepared in the general kitchen and sent to her. The patient's arrowroot, gruel, &c., must be made, and her beef-tea warmed, in the sick or segregation building, and all linen must be sent to the ward well aired.

Is it desirable to connect the "segregation" ward by any covered passage with the rest of the lying-in institution?

All the wards will be segregation wards. The passage can be dispensed with. (See plan.)

There is much to be said for and against. The ward, it is to

be hoped, will not often have to be used at all.

But small-pox has appeared after labour.

There might be danger in taking a patient from the institution to this ward through the open air, in all weathers, unprotected by any covered passage.

All risk, even to nurse, is avoided in the proposed hospital.

On the other hand, when once a patient is in the ward, complete isolation is by far the best, for the sake of all the others.

Just what is wanted.

And there is by no means the same necessity for a passage as in the other parts of the institution, where any night there may be three or four ordi-

Necessity for passages done away with.

nary delivery cases to be conveyed through the passages.

A covered ambulance for sick cases is not, however, a nice thing, though often suggested.

No; and it can be dispensed with altogether.

3. The first two may be called universal and essential principles of good management in every lying-in institution, large or small, however perfectly constructed.

Here is a third, hardly less essential, wherever there is more than one bed to a ward, viz., to remove a lying-in woman three times during her stay in the institution.

But it is unnecessary to remove a patient three times in such an institution as that proposed; twice is enough. Keep the patient in one room till labour commences, and then remove her to her own room just as she would be in a private house. Let the conditions be as near that as possible.

The average course of an ordinary

case may be reckoned thus:—

Seven or eight hours in the delivery ward. Five or six days in the lying-in ward. Nine or ten days in the convalescent ward.

The nearer wards to the delivery ward in use should always be made the wards for women immediately after delivery; the farther wards for the same women when removed for their convalescent stage.

In a single-bed ward the woman may remain in her own ward from after her delivery till her discharge; that is, no further removal after her

First. In expectant ward or room till in labour.

Second. In lying-in ward during labour, and onwards till she leave the institution—probably about ten, or twelve, or fourteen days.

Quite so; but there is in the proposed hospital no necessity for a delivery ward.

delivery is necessary.

4. Cases of extreme exhaustion after delivery, which are better out of the delivery ward, yet cannot be moved many yards, should be carried in their beds to the bye-ward adjoining the delivery ward, till they are somewhat recovered.

Leaving the patients in their beds is by far the best when it can be managed—just what is done when women are delivered at home.

These must have a constant watcher by them.

In special cases constant watching always required.

5. In a lying-in institution about three times the quantity of linen and bedding for each patient is necessary of what is used at a general hospital.

We should say that the store to each two beds should contain linen enough for two cases during their whole time, so that, in the case of emergency, there might be enough at hand and another supply brought according to necessity.

The day's and night's provision of

linen is kept in each ward scullery and in the scullery of each delivery ward in use

The linen-store in the store-room, and the bedding-store need to be very complete and ample.

Yes. This is scarcely the place to enter into the quantity required.

The bedding, that is, the mattress and blankets, of any one bed in the delivery ward, should not be used for more than three or four delivery cases in succession without undergoing some process of purification, and this quite independent of any accident, the mattress, of course, being protected by mackintosh sheeting.

Mattresses should be made of inexpensive stuffing (chaff or straw), which should be destroyed after being once used. The "ticking" or cover ought to be washed and made ready for re-filling. When the mattress is filled with more expensive material, it should be covered almost completely with mackintosh sheeting,

The blankets, &c., should be washed and purified each time.

SHOULD MEDICAL STUDENTS BE ADMITTED TO LYING-IN HOSPITAL PRACTICE?

This is a very grave question. Medical students were admitted to the lying-in wards at King's College Hospital. Was this one cause of puerperal diseases there?

There are facts, it is true, such as those supplied by the Maternité and Clinique at Paris (the latter only admitting medical students), in both of which establishments the mortality is excessive, which, on first sight, appear to show that the presence of medical students in a lying-in hospital is not necessarily a cause of add-

This question is best answered by asking another. Ought doctors to be instructed in midwifery? If so, when and where are they to be instructed? We have looked, in vain, through Miss Nightingale's book to get information upon this matter. There are hospitals provided where "midwives" or "monthly" nurses may be educated **comfortably**, but medical students can go to the **slums** of our cities. That is good enough for them; indeed, by inference, too good. They ought to be nowhere; yet they are blamable if, as doctors, they do not know and do everything. How much is expected of them as doctors! how little consideration they get as medical students! There is an attempt to attach a stigma or a slander to the very name.

We have no hesitation in saying that senior medical students ought to receive instruction in a hospital under proper and careful restrictions and regulations. There are many reasons why only **senior** men should attend midwifery, and that in their last year. But instruction in a hospital should not be limited to students; the hospital ought to be pre-eminently a school where medical men might enter and receive further instruction, or brush up knowledge which they may have forgotten from a variety of causes.

But for the safety of the inmates—childbirth being surrounded with risks if care be not exercised—certain restrictions should be enjoined upon medical students or medical men while attending the hospital—to the effect that they must not visit other hospitals, &c., or do anything contrary to regulations, with a view to guard against the spread of contagious diseases.

We think the question of excessive mortality said to be due to the admission of medical students is not quite conclusively settled by Table XLV., page 185. There may have been **many** circumstances which might account for a higher death-rate in the department with students admitted. The sanitary arrangements might not be as good as the other in several respects—its position, surroundings, &c. (p. 101). Besides, the students were under no such restriction as above referred to.

We think it is **scarcely** fair to put the case solely in this manner, and leave the matter so. The probability is, doubtless, that as no precautions were taken, the admission of medical students must be held account-

ing to a mortality already excessive. But, on the other hand, there are facts, such as those given by Dr. Le Fort, admitting of a comparison being made between the mortality in lying-in wards to which medical students are admitted with the mortality in other wards of the same establishment not admitting students, which appear to establish the point conclusively. The special case he cites is the following:

At Vienna there are two lying-in cliniques—one for students and one for midwives. They are both situated in the same hospital, able for a great part, at least, of the excessive mortality.

We have, however, quite as trustworthy information nearer home than Vienna. See Table XX., and compare it with that of the department in the Vienna Hospital, where midwives only were admitted. Does the comparison between the Rotunda and Vienna hospitals bear out the allegation that medical pupils, under proper restriction, cause a higher death-rate per 1,000 than when midwives only are admitted? No; quite the reverse. The statistics of the great Dublin hospital show a far greater superiority in the results, and accordingly the value of such an hospital is enhanced. The cliniques in the Vienna hospital were not parallel: the midwives were restricted, the medical students were not. Consequently we might expect a higher death-rate, especially from metria and other contagious diseases.

But, again, take the results of the Rotunda Hospital, and compare these with, *e.g.*, any representative British lying-in hospital (see Table XL.), and it will be found that the results are better, although pupils have been admitted from its foundation; indeed, one of the motives of the founder in establishing it was the admission and proper education of medical men.

We therefore consider a school of instruction in midwifery for medical men and nurses needed, and that nothing short of this can effectually lessen puerperal mortality throughout the whole country. No doubt the first consideration is safety to the women who come to be delivered. There can be no efficient school of instruction unless keeping down the mortality is a point of cardinal importance. It is in full view of these objects that we advocate the proposed hospital, and on the particular plan set forth on page 126. We do not at present think it necessary to enter into elaborate details of how the pupils and nurses are to be instructed and told off for their different departments. We think there is a great field open in the training of nurses as well as doctors, and so it would appear Dr. Farr thinks, as will be seen from the quotations already made from the reports of the Registrar-General.

On showing this volume to Dr. Duncan before finally passing it through the press, he kindly gave us Dr. Garrigues' paper on lying-in institutions contained

and their external conditions are insufficient, in themselves, to explain the facts now to be noted.

Puerperal fever prevailed in the hospital during the same months in ten separate years — from 1838 to 1862, and the following table gives the mortality per 1,000 in each set of clinical wards:

Table XLV.

Years.	Months.	Mortality per 1000. 1st Clinique Students.	2nd Clinique Midwives.
1838	June.	9	247
1839	July..	150	34
1840	Oct...	293	58
1842	Dec..	313	37
1844	Nov..	170	33
1844	Mar..	110	7
1845	Oct...	148	13
1846	May.	134	4
1847	April	179	7
1856	Sept.	13	105
1862	Dec..	63	2

Is it not quite

in the Transactions of the American Gynecological Society for 1877, vol. 2. This valuable paper is worth perusing, were it only that it records the resolutions of the International Congress of Physicians at Brussels in 1875, and Dr. Garrigues' opinions upon these resolutions. With his remarks we **entirely** concur, except so far as the query we have inserted in No. 3. We may add the motto *multum in parvo*. The six resolutions are in italics, and where he has shortened them we give them at length within brackets.

1. *A thorough reform in the help afforded to lying-in women is of urgent necessity.* Knowing how large the mortality is in many lying-in hospitals, and how much it can be diminished, everybody must heartily subscribe to this general remark.
2. *The large lying-in hospitals ought to be abolished.* This I can only agree with in a very qualified way. As I have said, I think the maximum limit ought to be the number that can be sufficiently watched. So I think the very large establishments, with many thousand confinements a year, had better be altered, and ought not certainly to be introduced into this country. But experience has shown that a thousand patients a year, or a little more, are manageable, and such a number is desirable for the purpose of instructing students, and of furnishing material for scientific research.
3. *Separate rooms* [they ought to be replaced by small institutions with separate rooms] contribute much to prevent the spread of infectious diseases, and so procure that quiet which is so beneficial to lying-in women. If they can be had, so much the better. By following the antiseptic treatment, they are less necessary; [Query. Is not complete separation of patients one of the best prophylactic measures?] but, at all events, wards ought to have only a small number of beds, so that they can be often kept empty, be disinfected, and aired.
4. *A separate building for occasional use* [There ought to be a house for occasional use in the neighbourhood of the establishment, having an entirely different administration, and different physicians] is, of course, also a great advantage, but the possibility of having it will depend on the means at hand, and even without this, if there be rooms enough for isolation and disinfection, a lying-in hospital may do much good.
5. *Confinements at the houses of the patients ought to be encouraged as much as possible, by assisting pregnant women.* If they have homes that are not too miserable, and can secure sufficient assistance, this is a good plan, which has given good results at Paris; but if the women are very poor, if they have filthy homes, if there are many children, a drunkard for a husband, or other disturbing influences, I think they have better chances in a good lying-in hospital. At all events, they must be controlled, so that they really stay at home, and do not go to other places, in which they may be more exposed than in a good hospital.
6. *Confinement in the houses of midwives, under the supervision of the Government.* [By having the women confined in the houses of the midwives, at the expense of the city government, and under its control, the number of births in the lying-in institutions and the general hospitals, is limited, and the mortality diminished. This measure is desirable under normal circumstances, and becomes a necessity during an epidemic.] This supervision ought to be exercised by physicians, and all the same precautions taken against infection as in the hospital, and even then, experience in Copenhagen has shown that other private families are to be preferred.

clear that some bad influence is at work on the students' side, which was not in force on the pupil midwives' side? That there was something else in operation besides epidemic influence is shown by the much greater frequency and severity of puerperal disease in the clinique than in the other. We may assume the fact without attempting to explain it, as proof of the necessity of separating midwifery instruction altogether from ordinary hospital clinical instruction; and does not this Vienna history throw fresh light on the experience

It is truly refreshing to see the stand our American *confrères* make in behalf of these institutions, and how fearlessly they proclaim their value, to the patients first, but also as schools of learning. In this country these institutions have sunk to a low place, so that it would almost seem that our obstetricians are afraid to say a word for them, or rather for reconstituting and reforming them, and eliminating the evils and abuses in them. Here are Dr. Garrigues' conclusions:—

1. Lying-in hospitals, with a number of yearly confinements not exceeding 1,000, are not to be feared when they are properly managed.
2. Most of those in New York are in a satisfactory condition, although there is room for improvement in details.
3. The adoption of a preventive antiseptic treatment is especially advisable.
4. It would be desirable to have the medical schools brought in connection with a comparatively large lying-in hospital.
5. Statistics being an indispensable source of information, it is to be hoped that henceforth more attention will be paid to the exact and clear recording of facts of this nature. [He admits the unrivalled distinction and excellence of English registration, but we think great improvement might yet be effected.]

We, for our part, fully endorse these conclusions, as we venture to hope we have proved in the preceding chapters of this work the necessity that really exists for greater and better lying-in accommodation; of course, we take exception to the fourth, unless proper precautions and restrictions are observed; experience shows the necessity for this. The second conclusion is confirmatory evidence of the position we have assumed, namely, that the attack upon these invaluable institutions is not well founded. It is a mistake to slander these institutions, and to attempt to cover them with shame and obloquy; the evils in them ought to be attacked, while the hospitals ought to be supported, for they are, and must be, the mothers of medical men.

In a postcript, Dr. Garrigues refers to Grünewaldt's paper; generally it bears out what Dr. Heller told us in reference to St. Petersburg (see p. 155). The separate institutions have only four beds, and are capable of delivering 120 women annually (but thirty seems too many to each bed). The first was established in 1869, and up to 1877 there were 10,400 delivered, of whom 103 died, *i.e.*, 1 in 100. Of course, this is satisfactory so far, but it is not worth much, because we do not know what has occurred in the hospitals in that time. Besides the class and number of patients, we should know whether the hospitals were closed for any time, and for how long. There is also

already alluded to of our midwives' school in King's College Hospital?

*** Admission of Students.**—It is one of the contingencies necessarily due to connecting together the teaching of midwifery to students, with other portions of clinical instruction, that no precautions can prevent a student passing from a bad surgical case, or from an anatomical theatre, to the bedside of a lying-in woman, while sad experience has proved that the most fatal results may ensue from this circumstance.

Of course this condition, that the chief of each of these asylums have the right to send any parturient woman on whom an operation is anticipated to one of the large lying-in hospitals. This would raise the death-rate much in the hospitals and lessen it greatly in these asylums. It is added that "the statistics show uncommonly few operations" having been performed.

If Dr. Garrigues may conclude his remarks as follows, how much more, in our present advocacy, may not we: "The author, although evidently speaking with much satisfaction of this new kind of lying-in institutions, finishes his lecture by saying that the same principles might be followed with the same results in the largest lying-in institutions, and that the work in a school with a large material has greater ideal value, and benefits the whole world as far as it shares the results of scientific conquests."

*As directly bearing upon the question of obstetric teaching in the metropolis, we introduce here a letter of Dr. Playfair's from the *British Medical Journal* of March 22nd, 1879. It tells its own story eloquently and powerfully, and comment from us is useless:—

THE TEACHING OF MIDWIFERY IN LONDON.

SIR,—The Committee of Reference appointed by the co-operating medical authorities having finished its work, it seems probable that the proposed scheme for conjoined examination may shortly come into operation. Its provision for the teaching of midwifery is so defective, from the point of view taken by those who are interested in the subject, that I beg your permission to comment upon it. It is obviously hopeless to appeal to the Committee, which does not include a single individual known as an obstetrician, and who is presumably acquainted with the extent to which obstetric medicine has advanced of late years; and the only thing now to be done is to appeal from the decision of the Committee to the common sense of the profession at large.

In paragraph 17 of section 1 of the proposed regulations, it is required of the student that he shall produce evidence "of having attended a course of lectures on midwifery, and the diseases peculiar to women, during not less than three months. (Note F.) Instruction in the use of obstetrical instruments must be included in this course." In making this regulation, the Committee could not have been ignorant of the fact that the teachers of midwifery in London

risks of this kind are greatly increased when there are lying-in wards in general hospitals—especially if a medical school be attached to such a hospital.

This risk had not been overlooked in the arrangement of the lying-in wards at King's College Hospital, under which, while intended solely for the training of the midwifery nurses provision was made for a limited and regulated attendance of students; but when enquiries came to be made into the probable cause of the high death-rates, it was found that the restrictions laid down as to the admission of students were unanimously of opinion that it was impossible to teach these subjects in so short a space of time, and that they were most desirous of having the curriculum on this point assimilated to that which exists in Scotland, and I believe in Ireland also, where a six months' course is imperative. In plain words, this amounts to a resolution that midwifery and gynæcology shall not be taught at all, since the attempt to do so, in a summer course of under forty lectures, is nothing short of a solemn farce. I am confident that every teacher of midwifery in London will endorse this assertion. Permit me to illustrate this statement by my own experience. I believe I can get through my lectures as rapidly as any one else; but last year I was obliged to omit all reference to such important topics as the diseases of the puerperal state, including puerperal fever, convulsions, mania, phlegmasia dolens, practical lecturing on the use of obstetric instruments (which the Committee tells us must be included in the course), and much besides. The year before, I omitted conception and generation, the physiology and pathology of pregnancy, placenta prævia, etc. During all the years I have lectured, I have never once been able even to refer to the diseases peculiar to women. What I am obliged to omit, other teachers have to omit also; and the profession can judge for itself whether this can be called satisfactory teaching. The Committee of Reference consists of a number of eminent physicians and surgeons, and an examination of their scheme shows how admirably they have attended to the teaching of the subjects in which they are specially interested. Of course, the student has to attend six months' courses of medicine and surgery; but, besides this, we have introduced what, so far as I know, is an entire novelty in a medical curriculum, viz., two separate and distinct courses, of six months each, on what is called "practical medicine" and "practical surgery." In one of these he is to be taught the methods of physical examination, the examination of diseased structures, etc.; in the other, the use of surgical apparatus, the performance of operations on the dead body, etc. Would it be presumptuous in me to suggest that it would be more easy, and certainly more profitable, to the student to compress these subjects into three months' courses, rather than the entire theory and practice of midwifery and the diseases of women? Moreover, the latter includes quite as much practical work as either

had been disregarded; also there was a post-mortem theatre almost under the ward windows.

medicine or surgery; and it is needless to add that the scheme contains no provision for a course of "practical obstetrics." Had this been a scheme for the education of pure physicians and surgeons, such as constitute the majority of the Committee which concocted it, it would, no doubt, have been excellent. As a matter of fact, however, it professes to be a scheme for the education of the general practitioner, of whose daily work midwifery and the diseases of women constitute quite as large a portion as medicine, and far more than surgery. To the two latter, twelve months' tuition is allotted; to the former, three only.

These facts speak for themselves; and I am satisfied that the bulk of the profession will agree with me, that in this matter, the Committee has dealt very unfairly with a great and important branch of practice, the anxieties and responsibilities of which weigh heavily on all who are occupied with it. At any rate, it ought to be well understood that if, after protesting that it is impossible to teach the subjects in three months, I and my fellow-lecturers send their pupils into the world ignorant of half of midwifery, knowing next to nothing of the application and uses of obstetric instruments, and scarcely even having heard of the diseases of women, the responsibility will not rest on us, but rather on those who have imposed on us a task which is an impossibility.

I am, etc., W. S. PLAYFAIR.

Possibly it may be unnecessary to single out a part of the above letter—a letter weighty and important throughout—but we may be pardoned for directing special attention to the last paragraph, and also to the fact (a lamentable one) that Dr. Playfair was obliged, from the shortness of the course, to omit all reference to the disease metria—puerperal or childbed fever. This disease, we have seen (page 6), is accountable for about half of the deaths from childbirth. The latter, we have seen, is third on the list of the diseases which cause the greatest number of deaths between 15 and 45 years of age. We think it unnecessary specially to refer to the other diseases he has been obliged similarly to say nothing about, and so send his "**pupils into the world ignorant of half of midwifery and scarcely even having heard of the diseases of women.**"

CHAPTER V.

COST AND MAINTENANCE.

THERE is no more interesting subject of enquiry than that which concerns almsgiving and charity, but the subject which most claims our consideration specially here is that division which pertains to the expenditure or to the maintenance of charitable institutions. It is usual to divide these institutions into three kinds:—

1. Those intended to provide the ordinary necessaries of life, such as food, clothing, shelter, dwelling, firing, &c.

2. Those intended for educational, for moral, and for religious purposes.

3. Those used for the alleviation of suffering in its purely medical aspects, excluding such as incurable disease in its various forms.

It is to the last of these divisions that we must restrict ourselves at present. There is no subject more pressing for attentive consideration than that of how these institutions are to be maintained. The cost is unequally borne. Humane and thoughtful men, and women too, have always borne the burden and heat of the day in this battle. But the saying "We must draw the line somewhere" must force itself upon them even when the purse is deep and large. It is difficult to be prudent stewards and to use talents discreetly. Moreover, it would not be their duty to remove responsibility from the large ungiving and unfeeling class of the community. At a season of unusual and unparalleled depression, such as has been and is still passing over this country from one end to the other, such a question as this must raise deep anxiety. So numerous are our charitable institutions, and so enormous the cost of maintenance, and without any likelihood of abatement in the immediate future, that this subject must continue one of great importance for years to come. This must be true, even though economy is studied and enforced on every hand. Bad times tell in two ways—the poor are increased in number, and there are fewer able to give.

As this work is passing through the press, we see that attention is being directed to the question of adequate hospital accommodation and medical relief in the public press. In the *Daily Telegraph* of 7th July, 1879, there appeared a *leader* on the subject, which had a healthy and invigorating ring about it; but, conscious of the strength of the enemy, we are afraid that the only safe solution and remedy will be found in the Government taking all charity administration under its wing. In this way the burden of the maintenance of our charitable institutions would be equally borne, which it is not at present. The efficiency and total management would be improved by a proper central system of organisation and inspection. The little additional taxation which would thus be imposed would not be so much felt as the constant bickering about support and voluntary aid which we have at present.

Enlightened men are, however, divided much in their opinion regarding charity-giving. Shrewd men of the world, business men, &c., as a general rule, are right in supposing that charity is one of the first things to suffer in bad times. Nevertheless, the absolute result is somewhat different. It has been supposed at the close of each of the last few years that the total amount given for charity would be greatly diminished. It will be seen (and we rejoice that it is so) from the following notice which appeared in the *Globe* that such is scarcely the case:—

THE METROPOLITAN CHARITIES.

The fourth annual edition of the classified directory to the metropolitan charities, by W. L. Howe, has been issued by Messrs. Longmans, Green, and Co. A tabular statement of the income for the year 1877-8 has been drawn up in the usual form. The total, when compared with the total for 1876-7, shows a decrease of £388,393; but the decrease is entirely accounted for by the reduction in the amount contributed to "Mansion House Funds," which in the year 1876-7 included £500,000 sent to the Lord Mayor for the relief of distress in India. It would therefore appear that the receipts are quite equal to the average of former years, notwithstanding the great depression of trade during the past twelve months. A special feature of the present edition is the addition of an appendix containing a nominal list of a large number of the unendowed or voluntary charities throughout England and Wales. The following is a statement of income for 1877-8 :—

		£	s.	d.	£	s.	d.
4	Bible societies	221,523	0	0			
14	Book and tract societies	86,791	0	0			
					308,314	0	0
57	Home missions	436,398	0	0			
10	Home and foreign missions	118,231	0	0			
22	Foreign missions	775,214	0	0			
					1,329,843	0	0
7	Church and chapel building				42,095	0	0
22	Charities for the blind	43,778	0	0			
8	Charities for deaf and dumb	16,004	0	0			
8	Charities for incurables	36,964	0	0			
6	Charities for idiots	55,483	0	0			
					152,229	0	0
17	General hospitals	310,237	0	0			
10	Consumption hospitals	50,356	0	0			
5	Ophthalmic hospitals	12,346	0	0			
3	Orthopædic hospitals	3,954	0	0			
4	Skin hospitals	4,564	0	0			
17	Hospitals for women and children	59,193	0	0			
5	Lying-in hospitals	8,766	0	0			
23	Miscellaneous special hospitals	96,862	0	0			
					546,278	0	0

33	General dispensaries	27,179	0	0		
13	Provident dispensaries	10,101	0	0		
2	Institutions for vaccination	2,680	0	0		
5	Do. for surgical appliances	14,326	0	0		
37	Convalescent institutions	40,982	0	0		
14	Nursing institutions	9,180	0	0		
					104,448	0 0
166	Pensions and institutions for the aged				442,458	0 0
94	Institutions for general relief	353,192	0	0		
23	Food institutions, loan charities, &c.	9,892	0	0		
					363,084	0 0
88	Voluntary homes				153,883	0 0
50	Orphanages				178,096	0 0
67	Institutions for reformation and prevention				84,783	0 0
107	,, education				403,818	0 0
50	,, social improvement				54,826	0 0
18	,, protection				71,584	0 0
1,009	Grand total				£4,262,739	0 0

Much as the subject of indiscriminate alms-giving is discussed, and the more difficult one of dealing with out-patients at all our hospitals, and notwithstanding the unsurpassing interest surrounding these matters, we cannot in this place enter upon them ; they are foreign to our present subject. They are very difficult to deal with, and must be sifted in the sieve of public opinion and discussion for a considerable time to come before any decided matured opinion can be obtained.

Coming now, however, home to our own subject; we have seen, from the data tabulated by Howe, the sum given towards our Metropolitan medical relief system was, £650,722 ; and for lying-in specially, £8,766. That is to say, one pound for lying-in purposes has been expended for every £74, for all other medical purposes; this cannot be described as an adequate or fair proportion. Yet the obstetric branch is more than one-third of the whole (p. 188). In establishing a new institution in bad times, it becomes us, however, to consider how we can present it in the most favourable light, so as to be welcomed by the public, not only on account of its own intrinsic value and pressing need, but also from an economical point of view ; so that the project may appear expedient, and perhaps form an element of usefulness in stimulating other institutions to do something to help themselves. We have proved in the preceding :—

a. That London does not provide adequate accommodation for obstetric purposes.

b. That a cottage hospital on the isolation principle is the kind more particularly demanded.

c. That the objects mentioned in Chapter III. on the construction of lying-in hospitals, namely to provide—

For the safe delivery of women who have no homes, or homes which are unfit;
For facilitating the delivery of the deserving poor at their own homes;
For the treatment of the diseases peculiar to women;
For thoroughly educating women of high character as nurses;
For affording clinical instruction in obstetrics to medical men;—

seem to be inseparably associated with each other, the integral parts forming a whole—well-fitted to represent one of the three great departments of the medical profession. By withdrawing any one of these five objects this branch must correspondingly suffer in its completeness.

It appears to us that so desirable a result as the establishment of such an institution in London would approve itself worthy to the philanthropic, and might be classed with such objects as those mentioned in Ans. 8, Chap. VI.

What then would it cost to establish a hospital with such objects in view? We have seen that a hospital of this kind should pre-eminently be erected on the outskirts of our cities in the most accessible place for the people; also, that it should stand in its own grounds. To give to the poor air and health, to open up breathing room when they are laid upon their bed, is surely a paramount object—one which the poor cannot do, one which the rich and influential can do if we can only arrest their attention, get them to reflect, to feel, to act. Not half of the people of London ever realise what London means—a dense mass of human beings stretching over an area of about 117 square miles (13 miles long and 9 miles broad), embracing, according to the Metropolitan Government Act, an area of 75,362 acres. In some parts there are more than 2,000 people to an acre. The streets, which number 10,000, and are 3,000 miles in length, are lined by about 400,000 houses, the rental of which is about £19,000,000 a year, and in these houses dwell hard upon four millions of people. The price of land in London must necessarily, therefore, vary very much. From £100,000 an acre in the city to perhaps £1,000 an acre in the outskirts of the suburbs. Possibly three or four acres could be obtained in a convenient part for from eight to ten thousand pounds, and to build twenty cottages on the same in concrete would cost about £6,000; £1,000 more would be required for a chapel.

In a work of this kind it is impossible to forecast the result exactly, either as to the cost or maintenance. There are many points that crop up to impede the progress; and hinderance and delay increase the expenditure. All that can be done is to present the salient points of interest and usefulness to the public, with whom the result must remain after reckoning the cost in the light of past experience. Much, no doubt, will depend on acting with tact, zeal, and alertness, taking advantage of opportunities, and meeting emergencies as they arise.

But, having got the establishment, the next question that presents itself is, how is it going to be supported? To this our special attention is requested. Hitherto, in London, most institutions got up as we have supposed this one so far to be, belong to the class called "Supported by Voluntary Contributions," or "Unendowed Institutions." We think, however, that there is undoubtedly room in London for accomplishing what has been successfully attempted in the provinces, that is, a self-supporting institution, and yet truly charitable—most desirable results, which must, we think, meet with favour alike from the general public who have to support our charities, and from the poor, who are the recipients. Moreover, it will surely be welcomed by the other charitable institutions, because it will lighten their burden by affording greater accommodation, while it does not withdraw any pecuniary aid from their resources.

It is not necessary nor desirable to enter much into details here. We think that the addition of a few thousand pounds more than has been mentioned above to carry on the work for a few years is all that would be requisite.

Adopting the principle of the provident system in part, a small amount will be received from the in-patients—just so much as to clear their board and washing. In childbed, the patient's board is comparatively inexpensive.

As a training institution, there are two sources from which a considerable income might be added to the annual funds of the institution, while, at the same time, those instrumental in accomplishing this object would derive considerable benefit themselves.

First, with regard to the nurses. The practice which is universally followed in the metropolis at present is to charge so much for instructing women in their profession, or whatever else it may be called. This appears to us to act injuriously in many ways. It prevents a great many from entering the ranks who cannot because they have not any money to pay. We do not hesitate to say that many, therefore, are shut out who would adorn this calling, whose motives are choice, are correct, but they have not the means to put their good intentions into practice.

On the other hand, we should propose to pay women for learning a really lucrative profession. In the first year the nurse would receive a wage of, say £15, in the second £20, in the third £25. The only condition we should enforce is that she shall remain for three years, and that she shall place herself at the disposal of the institution.

Second, with regard to medical pupils. A considerable income would accrue to the institution by accommodating pupils during the period that they attend the institution for instruction.

From these three sources it is computed, on the most careful reckoning, that an annual income will be derived, which will fully clear the annual expenditure when it is **fairly established.**

Hitherto we have only referred to defraying the cost of the site, structural arrangements, furnishing, annual expenditure, and so on. How can the institution be maintained until it is "fairly established"?

To do this a few thousand pounds might be raised by subscription, or a limited number of beds may be sold, and with the money so obtained carry on the work for the first few years.

Perhaps some such plan as indicated on page 126, for disposing of beds to congregations, missions, societies, philanthropists, or for IN MEMORIAM purposes, etc., might be useful and welcome (see p. 212).

We would recapitulate the objects of the Institution if established—a Hospital for the needy, a place of instruction for nurses, and the only place of practical instruction in obstetrics for medical men in Great Britain; besides this, and perhaps we may say above all, it will be self-supporting. Under this last head we may perhaps usefully add a few words. No hospital in London derives any income (with the exception of trifling sums from paying patients) from any other source than charity and, of course, endowments. The subjoined extract will, we think, interest the reader as affording very strong grounds for believing that we are not mistaken in expecting such an hospital to be self-supporting. The Glasgow Training Home for Nurses, to which it refers, was originated under less favourable circumstances. It has some features similar to the institution for which we plead and invite attention. If a yearly income of £900 can be got in a small provincial institution of this kind solely by the earnings of from 15 to 20 nurses what may we not expect in the metropolis? We may also mention that the DUBLIN NURSES TRAINING INSTITUTION, which was originally founded as a charity, is now more than self-supporting. These are representative and good examples (from amongst several others) which will suffice for our purpose. When the idea was first broached in Glasgow of establishing an institution of the

kind with such objects in view on a self-supporting principle, it was characterised as "Utopian," and many other epithets were used besides. The promoters came in for no end of abuse in the shape of letters in the newspapers—trying indirectly to cast ignominy upon them. But by that time the idea was conceived and brought forth. The child was adopted with tears of gratitude. The adopted child has been nursed and matured in the cradle of devotion and care, so that being healthy and comely it has lived through it all, and it is now admired; and, like a tree, the storm which seemed to crush and level it to the ground only helped to strengthen its root and to give it a firmer hold. The medical journals and newspapers are now forward to do kind offices to this institution. The *British Medical Journal* of 8th March, 1879, has the following notice about the said Home:—

"The fifth annual meeting of the supporters of this valuable institution, was held on February 26th, and was very largely attended. The objects of the institution are to supply properly trained nurses to the town and surrounding districts, and also to admit medical and surgical cases, so as to have the means of instructing the nurses in their duties without sending them away to some public hospital to be trained. The report, issued by the directors and approved of by the meeting, was of an encouraging nature. It showed that 215 cases had been treated in the establishment during the last year, 61 of which involved surgical operations, many of them being of a severe nature; and it also stated that of the 29 nurses at present attached to the home, 22 are fully qualified to go out and attend on patients at their own private residences. The extent to which their services are in demand is shown by the very gratifying circumstances that the revenue derived from nurses' fees was, in 1874, £12 19s., while last year it had risen to £889. This success on the part of the institution is not only due to its meeting a want, but also to the excellent character and efficiency of its nurses * * * * With a view to increasing the usefulness of the Home, and if possible, making it self-supporting, the directors have acquired and are adapting new and larger premises, and there seems no doubt the institution will then enter on a period of increased usefulness and prosperity."

This experience is invaluable, and these two examples afford convincing proof that the self-supporting idea is practical and attainable.

CHAPTER VI.

CRITICISMS (OF THE SCHEME ADVOCATED IN THE PREVIOUS CHAPTERS), WITH REJOINDERS.

"FOREWARNED, FOREARMED."

OBJECTIONS, HINDERANCES, DIFFICULTIES, IMPEDIMENTS,

By various Parties Representative of Public Opinion.

1. That it is against the divine principle of "family life," and that childbirth is an event to be foreseen and provided for beforehand.

ANSWERS.

1. If it were so, then all institutions of a charitable kind must be put on the same platform; and there should be no such thing as a charitable institution. The present hospitals should never have been erected; and therefore ought to be demolished. Surely preposterous! This "family life argument," as it may be called, like so many of the objections, is based upon "*supposes*;" upon what a home ought to be, not upon what homes are—mere theory and sentiment, and destitute of fact. With lying-in cases (as in other cases requiring medical aid, and perhaps even more so in this instance) the home is often the worst place for a woman to be in. Is there not truth in the saying that "She needs *rest*,—more than she can get"? "She will get up and work"; and this is even the case with those who are well-to-do, and what must it be in the case of the very poor? Therefore we find women sitting up in bed the day after their confinement, because they have "to wash out or see to a few things for the baby," or they get up because they "cannot bear to see the place so dirty." On the other hand, there are many poor people surrounded with filth, and listless to its injurious effects; and in the opinion of their best friends and the doctor—the latter often a better friend to the very poor no less than to the rich than is commonly supposed—who are pained to see the state of matters, the best thing that could be done for them would be to get them away from their own homes, which are wretched, and often

* Grateful acknowledgments are made to Dr. Kennedy and Mr. Tennant for suggestions in connection with this chapter.

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disturbed by large and sickly families, when rest and quiet are most needed. There cannot, therefore, be any doubt but that a charity of this kind is one of the most wanted, as it is one of the most merciful and useful in its results. One of the primary principles and uses of this Institution is to facilitate as far as practicable females being confined in their own homes, by affording them gratuitous attendance in labour; the beds in the Hospital being appropriated only to destitute females or those where the comforts of a home are unavailable—a large number of whom, despite every exertion and forethought, must exist in the untold population of London—and cases of difficulty.

To rebut this objection completely it will be enough further to give the opinions of the following authorities, the ablest in this empire on such subjects as this:—

Dr. Farr, in the appendix to the annual report of the Registrar-General for 1870, states: "For so destitute are some poor creatures, that, either in some such separate institution or in workhouses, they must have help, and this necessity may be turned into account in a training medical school."

Sir James Simpson states that "the establishment of hospitals is a necessity, and marks the era of an advanced civilization. We must always remember, indeed, that a number of sick persons are merely brought together in order that medical attendance and nursing may be more easily performed. The risks of aggregation are encountered for this reason; otherwise it would be far better that sick persons should be separately treated, and that there should be no chance that the rapidly changing and in many instances putrefying substances of one sick body should pass into the bodies of the neighbouring patients. There is indeed a continued sacrifice of life from diseases caught in or aggravated by hospitals. The many advantages of hospitals more than counterbalance this sacrifice, but it should be the first object to lessen the chance of injury to the utmost. The risk of transference or aggravation of disease is least in the best-ventilated hospitals. The great supply of air, by immediately diluting and rapidly carrying away the morbid substances evolved in such quantities from the bodies and excretions of the sick,

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reduces the risk to its minimum, and perhaps removes it altogether. But the supply of air must be enormous. We are not in a position to say how much; but I question whether even the large quantity of 4000 cubic feet per head per hour, now assigned by the best observers, will not be found to be far below the proper amount for the acute and febrile diseases."

Dr. Churchill stated, in one of the most famous and most powerful debates on record: "I have no doubt of the utility of maternities. They meet the wants of a large class of the poor, to whom, for moral and social reasons, removal from their families would be a serious injury; and also of a class somewhat above the very poor. But for the latter (the very poor), destitute of all comfort and food and fresh air, and proper nursing, a hospital is surely a great and valuable refuge, unless, in addition to professional attendance, we could undertake to provide all other necessaries."

Dr. Matthews Duncan states, "I enter on the subject with great care, for I regard the institutions attacked with the reverence due from a child to its mother; and I do not hesitate, in advance, to say that I regard the attack on hospitals, apart from its scientific merits or demerits, as conducted in a very indecent and injudicious manner.

"The practical consideration was the defence of Hospitals against unjust attacks. These invaluable institutions he found misrepresented in a manner which he considered most unfair, and which he knew to be most injurious. He felt bound to try what he could do, not so much in their defence as to secure them fair play.

"I can find no ground for the awful suspicion that well-managed hospitals have caused a large, unnecessary or unavoidable mortality, or developed diseases previously unheard of.

"Figures cannot settle a question like that now before us. So far as they go, they appear to me to show a well-managed hospital to be worthy of admiration and encouragement. They should not diminish the zeal of all loyal physicians to introduce and carry out many improvements in them."

Sir Charles Trevelyan, whose antipathy to the present system of medical relief is so well known, says: "This sketch would be incomplete without briefly noticing Cottage Hospitals, which have been

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founded of late years in full view of the faults of the existing system of medical relief, and with a corresponding desire to avoid them. Instead of a concentration there is a decentralisation. The type aimed at is that of a well-ordered home, with its kindly, health-giving, individual influences; and as the patients are treated as if they have duties to perform or a character to sustain, their moral nature receives no taint from the material aid given to them."

Miss Nightingale, to quote only one passage of many more antagonistic to the present hospital system—her opinion will be valuable as showing that lying-in institutions are still worthy of encouragement and consideration—she says: "Suppose that all these precautions could be carried out, will the cost and difficulty of giving effect to them necessarily lead to the abolition of all accommodation for midwifery cases, or for teaching midwifery? We reply, No. The facts already adduced clearly show what may be done in this matter.

"They prove in the first place, that lying-in women should, as a rule, be delivered at home. And, as a consequence, that whatever provision may be made for cases of special destitution, or for midwifery teaching, such provision should be assimilated as far as practicable to the conditions which surround lying-in women in fairly comfortable homes."

In fact, all who have really faced this question at all have been obliged to admit the necessity of having lying-in hospitals. (See Chapter III.)

The sum of the whole is contained in a principle like the following:—We endeavour to assist the poor and the sick, with the view not to remove the responsibilities which their Creator placed upon and intended for them, but to help them for the moment to something which is quite foreign to or outside themselves, which they cannot attain; and so we try to enable them to fulfil their duties in life.

2. That there is no need for a new hospital of this kind.

2. The four existing hospitals have been established for over a century. Since which time London has increased by about 3,000,000. This increase, therefore, is practically unprovided for. Besides, there is no hospital of this kind in London, and the accommodation for poor lying-in women in London is far behind that in the other capital towns of the kingdom. If further proof

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were necessary that some more lying-in accommodation is required in the metropolis, it will surely be enough to state that about two or three years ago no fewer than 6 of the 11 Obstetric Physicians of London signed a document, recommending a certain plan for the said purpose. For some cause or other this scheme has fallen through—the need, nevertheless, remains the same.

Furthermore, the fact that the scheme advocated is warranted (see Opinions, Chapter III.) and has the approval of some of the highest authorities in this department of medical science in favour of such an institution, ought to be enough to satisfy the public and the profession respecting the need that exists in this direction. The need is undeniable, and is proved from the following tables, introduced from Chapter III.

Table showing approximate Medical and Surgical Provision in Hospital in London, Dublin, and Edinburgh, with Accommodation in proportion to Population.

Table XLV.	Total Number of Beds.	Proportion of Beds to Population.
London.....	10,760	1 Bed for 330
Dublin	1,615	1 „ 195
Edinburgh .	736	1 „ 327

From the above table it will be seen that there is scarcely any difference between London and Edinburgh respecting its hospital provision for medical and surgical cases. Dublin has greater provision. But when we look at the provision for lying-in women, there is simply no approximation whatever between these capital cities. This will be seen from the following table:—

Table showing Lying-in Hospital Provision in London, Dublin, and Edinburgh, with Accommodation in proportion to Population.

Table XLVI.	Total Number of Beds.	Proportion to Population.
London.....	145	1 lying-in bed for 24,000
Dublin	155	1 „ „ 2,000
Edinburgh .	30	1 „ „ 7,500

As might be expected, therefore, we have the following

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result in connection with the delivery of lying-in patients in the three cities:—

Table showing approximate Number of Women Annually Delivered in Hospital in London, Dublin, and Edinburgh, with Proportion to Total Deliveries.

TABLE XLVII.	Total Number Delivered in Hospital.	Proportion to Total Deliveries.
London.....	1,300	1 in every 98
Dublin	1,800	1 „ 5
Edinburgh .	260	1 „ 27

But, besides, one has merely to observe the current literature of the day, medical and other, in order to be convinced of the great want that exists in London. Here is an example not later than the *Lancet* of May 10th, 1879.

"Under present circumstances, the authorities of Queen Charlotte's Lying-in Hospital are incurring grave responsibility by continuing to advertise that 'in-patients are received from all parts of the kingdom;' their usual advertisement having appeared in the *Times* of Tuesday last. If this advertisement was inserted inadvertently, it is due to the reputation of the hospital authorities, and desirable on public health considerations, that equal publicity should be given to the following facts, reported by the Registrar-General in his last weekly return. During the five weeks ending last Saturday, the deaths of no less than ten mothers and of eighteen infants have been recorded in this institution. When it is further stated that most of the mothers died from septicœmia, and a large proportion of the infants from erysipelas, we may be excused if we disbelieve the possibility that under such circumstances any new patients would be admitted to the hospital, the advertisement in last Tuesday's *Times* notwithstanding. We are told, however, by the Registrar-General, that fifty-nine births have been registered in this hospital since the 1st of April last, of which at least eighteen have occurred since the 15th of April, and therefore since the outbreak of this remarkable epidemic. These facts require explanation, and afford further grave evidence of the serious responsibility attaching to the maintenance of this institution as a hospital for the reception of in-patients. Even during the last year, when the

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mortality in this hospital was below the average, there were seven deaths of mothers to 565 deliveries of living children, which is about six times the average mortality among women delivered under the auspices of well-conducted out-door maternity charities." (See pp. 66, 72.)

3. That women in London have a repugnance to and prejudice against being confined in a hospital.

3. This requires to be proved. Individual experiences are here comparatively of little value. The hospitals in existence here, as well as in other places, do not find that such is the case. Nay, the contrary may fairly be asserted, for the hospitals have to be shut up every now and again—most probably in consequence of overcrowding, and the evil results which consequently follow.

It will suffice to quote the authority of Dr. Kennedy, than whom there can be none more capable of giving an opinion. He states that "these poor women flock to these hospitals."

It would appear that this objection is not founded on fact, for it seems, on the authority of the Registrar-General, that 41 births occurred in Queen Charlotte's Hospital between the 1st and 15th of April. See answer 2. This registration is at the rate of about 1000 in the year—but on an average there is only half that number. The penalty of this high rate soon followed, there being 10 deaths of mothers and 15 of infants in 4 weeks, resulting in the closing of the hospital.

4. That if poor women require gratuitous attendance at such a time, they can have it at their own homes, through the special department of our great hospitals.

4. Not one of the great General Hospitals of London has a Lying-in ward, and the out-door department for attending to this work is far too limited—being mainly for teaching requirements. London in this way does not do one-half so much as the other capital cities.

This will be evident from the following table:—

Table showing approximate Number of Women Annually Delivered gratuitously at their own Homes, in connection with the out-door department of our Hospitals in London, Dublin, and Edinburgh, and Proportion to Total Deliveries.

TABLE XLVIII.

	Number delivered at their own Homes	Proportion to Total Deliveries.
London ...	15,000	1 in every 8
Dublin ...	3,000	1 „ 3
Edinburgh	1,740	1 „ 4

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	The attendance of the out-door midwifery patients at hospital opens up a difficult question. Its imperfections and trials and disadvantages are known only to those who have had experience, and it is impossible to convey in words the impressions received, in so far as the students, as well as the poor, are concerned. Usually the poor do not realise their condition as seen by others; poverty blunts the sensibility and the finer qualities of our nature; they are callous to the filth and debasement. The student, usually a young man, often a youth, always a student, receives impressions from this short experience (for it is only from six to twenty cases he is required to attend) which are imperishable. Generally he is anxious and very desirous to learn and to do all in his power for the person who requires him in her time of need. But experience he cannot have should a difficulty meet him, and in such cases instant action is requisite, delay fatal. It has come to our ears from various sources, and it is perhaps a more commonly known thing among the poor in one shape or another than is generally believed, that students sometimes (it would be a slander on the profession to say often) perpetrate cruel jokes in their preliminary obstetric experiences. To mention one instance which is often talked of, students have taken one or two clerks, or young men, companions, with them, to see, for curiosity's sake, a labour, while the poor woman is under the impression that it is a doctor of experience, come for the purpose of assisting the "inexperienced." (See pp. 68, 183-7.) Would it not be infinitely preferable to have a thoroughly reliable pupil—very often a registered practitioner—together with a nurse to go from such a hospital as that which is proposed, to attend the poor deserving people at their own homes when desirable, as compared with the present system? This view of the matter ought to be noted by those who advocate so strongly in favour of our extern midwifery practice, as pursued in connection with our teaching hospitals. It is impossible to put "old heads on young shoulders."
5. That in the case of single women concealment would be made	5. This is an old objection, yet pertinaciously held by three of the four existing metropolitan institutions. A Lying-in Hospital should open its door to the poor and needy. The Union is neither constructed with a view to the

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too easy by allowing them to go into such an hospital as that proposed, and that therefore the workhouse would be a more fitting place.	delivery of women on a large scale, nor ought the public to consent (and that justly too) to be taxed for the support of the errors and follies of others, who ought and are able to bear them themselves. Miss Nightingale states, in regard to this subject, "In a civil lying-in institution it would not be by any means desirable absolutely to exclude single young women *primiparæ* — it would be grievous to some of these poor things to be sent among the (often hardened) wretched women of the workhouse. The whole question of these poor young women—unmarried mothers of a first child—is full of difficulty. It would never do, morally, to make special provision for them. And for this very reason we seem bound to receive such, conditionally, into well-regulated lying-in institutions, and afford some kindly care to prevent, at the very least, their sinking lower. But it would not be right to leave any admissions for single women in the hands of any young assistant or morally inexperienced person. The principle appears to be, that if pregnant women are to be received some time before, and kept some time after delivery, the excess of time should not be passed in the lying-in wards, but in separate accommodation." No opinion could be more pregnant or weightier.
6. That in the case of poor people, the union or workhouse, the maternity charities, quasi-private charities, supply all the wants, and afford the desired help.	6. One who affirms an objection of this sort cannot be conversant with all the necessities of the case. The Union is properly for paupers only. The Maternity Charity of the Provident Dispensary System, or that attached to some churches, no doubt has uses and supplies a want, but it cannot take the place of hospitals, which are necessary for the reception (1) of a certain proportion of lying-in women, (2) difficult cases, and also (3) for purposes of instruction. The plea of morality and decency alone is enough to outweigh, at present, difficulties of this kind. The number of single rooms occupied by married people with several children is simply enormous, and after all that we can do, we shall fall short—incomparably short—of what should be provided to meet the necessities of the case. The class for whom this Hospital is intended are not paupers; their condition is even more pitiable. They cannot afford to pay a doctor, and their dwellings, unworthy of the name of *Home*, are overcrowded. The state of morality that must exist and be generated

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where a woman is confined in the midst of three, four, or five of her own family, is truly lamentable.

A hospital should open its doors to the poorest and most despised. By poor is not meant a pauper, although, in exceptional cases, inmates of the hospital may fairly come from such a class as that. But a pauper has a claim on the union already, and through it upon the support of the public. The poor, among the humble, the honest, the industrious, and the destitute among the various grades of tradespeople, mechanics, and others, who have made no claim upon the parish—and how many there are who might (may we not say, ought to?) have a claim, if they would but ask—these will have the chief advantage by the establishment of such an institution. (See pp. 122-7, 166.)

The dwellings of the poor are indescribable, they are simply fearful; and were it not that we do not wish to encumber our pages and harass the feelings, ample opportunity is at hand to depict the misery, so far as words can do it. But this we think is unnecessary; suffice it to say, that their abode is small, ill-constructed, ill-lighted, destitute of efficient means of ventilation, drainage, cleanliness, and other accessories to well-being, which are universally recognised as invaluable aids towards the recovery of the sick. A person accustomed to live differently, perceives this condition at once on entering the dwellings of the poor. The bedstead, if there be one, is often in a ricketty state, covered often in such dens by only sacking or sheeting as a sort of substitute for the more frequent hard straw mattress. The bedclothes, often only a make-believe, consist of a few filthy rags. There is no fire, sometimes no fireplace. How often there is little or no furniture, or food, or any comfort in such an abode. At other times there are children running about, their cries and their gambols alike distressing, as it is inimical to comfort or repose, so much required after travail. Is it possible to conceive a state of matters more totally unsuited to a person at childbirth? When we think of their food, thoughts at once rise to show how inadequate it is, in many cases how unsuitable, and that there is no due regulation in its administration. It is quite true soul and body are kept together in these poor creatures, they exist, but

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that is all; they cannot defray the expense of suitable "diet," using the term in its modern signification as applied to the lying-in state. We shall never forget the impression, in connection with extern midwifery practice, one case made upon us, as we found on entering a miserable room, a poor woman on the floor, who had been delivered of a child an hour previously without the aid of any person—unable to move, partly from fear, and partly from other causes which it would be out of place here to narrate.

The poor cannot have anything like constant or regular medical supervision when confined in their own homes. The doctor cannot do everything. He must live, he must be paid, and the poor cannot afford to pay him; so that, with every desire faithfully to fulfil his duty, the physician finds it a difficult, sometimes a painful and impossible, task to do so. There are a thousand and one circumstances which make it entirely beyond his control to give as much attention to the poor as the occasion would require. Respecting the nursing, see answer 9. Suffice it to say, it is out of the question to speak of nursing in a wretched garret, cellar, or slum, without furniture, and the few things of furnishing are usually filthy and loaded with insects. But here is an ample field for the district visitor, district nurse, bible-woman, nurse, etc. The house and all may at least be put in order and "tidied."

7. That the working classes have too many hospitals and charities open to them; increasing the number tends to encourage and engender improvidence and pauperism.

7. This is denied *in toto*. They have not too many hospitals open to them. Hospital relief is the one system of charity that cannot induce improvidence. Inferior or incompetent, or delayed medical and surgical aid, which is only that within the working man's means, often lays the foundation of protracted disease and death, whereas hospital attendance—the best and most experienced that can be had—places the poor man on a level with the rich in point of recovery and health. Increasing the number of hospitals increases the facility of obtaining this invaluable boon at the very moment it is most necessary, most available, and consequently most valuable. 10,760 beds for the two other departments being provided, 145 is ridiculously inadequate for this great branch alone.

This will be best and most clearly brought out by the following tables.

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Table showing Accommodation and approximate Number of Medical and Surgical Patients attended gratuitously in London and Edinburgh, with Proportion to Population.

TABLE XLIX.	No. of Beds.	No. of In-patients.	No. of Patients per Bed.	Out Patients.		Patients visited at their own Homes.
				Out-patients at Dispensary of Hospital.	Proportion to Population.	
London	10,760	58,318	5	1,241,247	1 in every 3	12,000
(16 times larger than) Edinburgh ..	736	1,960	3 (nearly)	62,996	1 „ 4	10,000

(Dublin Statistics are here so markedly deficient that no useful end could be obtained by giving them.)

In the above table we note some points of difference between London and Edinburgh. Fewer patients attend the hospitals in the latter, both as in- or out-patients. The numbers attended at their own homes are much larger, only one-sixth behind London, although the latter is sixteen times larger.

But if we turn our attention to the following table, we shall find that the provision is exactly reversed. London falls far short in its provision for lying-in women as compared with Dublin and Edinburgh than it excelled Edinburgh in its provision for medical and surgical cases. (See pp. 124-5.)

Table showing the approximate Number of Women Gratuitously Delivered, in and out of Hospital, in London, Dublin, and Edinburgh, with Proportion to Total Number Delivered.

TABLE L.	No. Gratuitously Delivered by aid of Medical Relief.	Proportion to Total No. of Women Delivered.
London	16,300	1 in every 8
Dublin	4,800	1 „ 2
Edinburgh	2,000	1 „ 3½ (2 in 7)

When we view the state of the poor—their overcrowded and filthy dwellings, the foul air, the bad and adulterated food, the disproportion between the present expenses of living, to the wages that such darkened or besotted minds and feeble bodies can earn,—let us be silent, and grateful that our own state is better. Let us remove whatever stumbling-blocks we can out

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	of their way, and do what we can to aid them towards health and virtuous industry. We ought not to grudge a little comfort and nursing to the poor in their time of need.
8. That the present is not an opportune time for bringing forward a new large scheme of this kind.	8. This is quite true in one sense, looking at the matter merely from the prevailing commercial depression. But looking at it from another point of view. The need is great. London has only, as these pages pass through the press, one small lying-in hospital of about **25** beds available. Thus the most opportune time will always, in this as in other benevolent objects, be found to be whenever the need can be best brought under the notice of those possessing wealth, influence, and station. Though all kinds of industry are meantime in a depressed state, yet there is enough wealth and to spare in the hands of our liberal-minded people to undertake a scheme with such objects in view. The only requisite is to get this want fairly represented before the right people. The scheme, once started, ought to become self-supporting, *i.e.*, a most useful charity on a really provident principle, without the drawbacks which that system has. In support of what has just been said, it may here be noticed what has recently occurred:—(1.) A member of a firm in Birmingham (as lately announced) bought a site, built an hospital containing 300 beds, furnished it throughout and handed it over free to the authorities. (2.) In Dublin, a well-known distiller there gave £200,000 to build a church. (3.) The influx of money, amounting to about £80,000, in the two recent terrible disasters on the Thames clearly shows that when there is need there is both money to meet the requirements and the heart to give it. (4.) It has been also announced that £95,000 are required to found a new Bishopric in Liverpool; of this sum £85,000 have already been promised, of which there were four donations of £10,000 each. (5.) And a few months ago Mr. Randolph bequeathed £60,000 to the Glasgow University, and this in addition to £45,000 from the Marquis of Bute and £40,000 from the late Mr. Freeland, of Nice. (6.) Mr. George Parker has given £8,000, as announced in the *Times* of November 26th, to build a church at Lewisham. Many more instances might be given, but these will suffice. Such facts as these need no comment or application. There

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	is plenty of money and many willing to give it, and betimes we trust it will meet with a similar response to the instances just given, and that philanthropists will support the cause.
9. That a woman cannot leave her home easily at such a time; that she can get a midwife for 10s. a week, who will attend to mother, babe, and other children (if any), husband, and house generally. And, if she did leave, her husband would probably, or might, abscond and desert her.	9. "Necessity has no law." Of two evils choose the less. It true that a woman can get a *midwife* for 10s., what kind of attendance will this be? probably the mother will require to go, as soon as she can get about, to one or other of the hospitals, and thus, in consequence of mismanagement at the proper time, help to swell the out-patient department, so much complained of now-a-days, or the child have to be taken to the Children's Hospital, all for the want of the services of a skilled nurse at such a dangerous period. The health of many women is impaired for life, and the homes of many quiet and industrious honest working men made unhappy and discontented all through the want of requisite care and skill, entailing delicacy and ill-health. As the period of lying-in is fortunately one that may be reckoned upon, so every woman who will, may, by some act of kindness previously to a friend or neighbour, obtain reciprocal services, and thus one could be obtained who would attend to the house and its affairs during the absence (if necessary) of the mother. The poor are often very kind to one another. Or, general surveillance may be assumed by the district visitor, bible-woman, district nurse, &c. Such an hospital is not for those who can afford to have proper attendance and care, but to bring relief to those who cannot procure it, and yet are not paupers—a very large number in London. Further, it is extremely doubtful if the poor can get any one that deserves the name of midwife, let alone skilled midwife, at 10s. a week. They may get a so-called midwife, but she will generally only "attend" the mother and child, and will expect to "get everything to her hand, and do no washing." As for cleaning up the house, that she will not do; matters of this kind will be left to the mother. One can fancy what some of these poor mothers have to go through on resuming their duties after childbirth. As to the desertion of the husband if his wife went into hospital, it requires to be proved: it is more likely the act would have the opposite effect in at least the majority of cases, because it would put him in a

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better position in almost every respect. Besides, any one who wished to abscond can have plenty of opportunities at another time for doing so.

In regard to midwives it may be well to note here that the class so termed never seem to gain any advance in knowledge from experience. Midwives are ruled by traditions, often dangerous superstitions, sometimes filthy enough when practically carried out. How often the occasion is made one for conviviality, and the generation and spreading of stories and gossip, which it is needless, if it were possible, to describe. There is the drinking, the smoking, and the shocking talk which would baffle description, and which cannot be conceived by one who has not come into contact with the roomful of people, male as well as female, present on these occasions, in the houses of the so-called poor. Often there is only one room, and if more than one, all crowd into the one occupied, and this of course for various reasons, some good and others bad, but all unconscious and ignorant of the evil effects that might ensue from such crowding. Add to this also that the case may be a bad one, necessary skill is delayed till too late, and lives are sacrificed.

The ordinary *sage femme* ought to be replaced by a properly skilled midwife or nurse. Customs the most shocking and repulsive are performed at the present time, not merely in the country districts and out-of-the-way corners, but in enlightened London—the centre of civilization—aye, and perhaps more so in London, and under the very noses of the Colleges and Parliament, than in the remotest part of the provinces. Queerer things may be seen by the observer in London than perhaps in any other part of the empire. It is unnecessary to enter here on the circumstance that the midwife does not carry out the injunctions of the doctor, for all are more or less familiar with examples of this kind. But none can reckon the deaths, the enormous number of deaths, caused by their absurd prejudices and superstitions, which form the clew often to what is called their "skill."

Substitute this condition for the order, quiet, cleanliness, comfort, decency, nursing, and let us add, for the present safety of a well-managed hospital, and he will be a daring person who will not allow that hospi-

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tals are a blessing to the whole country—to the poor themselves, to the rich, to the doctors, and to the community generally.

The very term of midwife, as applied to the large class who take this name, but who have not had education or hospital training to entitle them to do so, is simply sickening. It means, to those who know anything about it, any old woman used up, with a little lore and plenty of the "gift of the gab," who has a living to make, and can't "wash." (See pp. 108, 127.)

10. And further, by sending the mother into hospital the family is broken up (consequently family life also), the husband driven into the public-house, and the children utterly neglected.

10. This objection, like so many others, is entirely theoretical and imaginary. Fortunately, there is proof of a positive kind to rebut it. It is an acknowledged principle that lying-in provision is necessary, and the numbers of poor as well as rich who flock and crowd into London, from a variety of very different causes, clearly indicate that there is more provision of this kind called for here than almost in any other town in the world. But a glance at the paper of "Statements" (see answer 2) reveals that London is *far* behind, in this respect, the capital towns even of the United Kingdom, which cities in their turn are behind those on the Continent of Europe. Therefore—

(I.) We maintain that by making adequate provision for the deserving poor we are by no means breaking up homes or "family life"—quite the reverse; in trying to help at such a time we hope to cement and strengthen the family ties.

(II.) We are endeavouring thus to provide the safest place for delivering—

1. Such as have abodes rendered *unfit* (what can be worse, yet the word seems not enough?) from—

a. Overcrowding—two, three, or more children living with the parents in the same room, in which case unchastity, immorality, indecency, and disease *must* be generated.

b. Large sickly families, so that the mother cannot get the needful rest and quiet.

c. Misery, wretchedness, and starvation, which are prevalent and induced probably by drunkenness, want of employment, and other such causes.

2. Such as have no homes or houses—deserted mothers, for example, and the like. It is not

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advisable to put pregnant women into the Union if a better and safer place can be provided elsewhere. It ought to be known and borne in mind that the workhouse is not constructed with a view to use it as a Lying-in Hospital, although statistics show that the mortality in them is considerably less than that hitherto obtained in our large Lying-in Hospitals. See conclusion of answer 1 and Table xxxvi.

(III.) Timely aid rendered in such an emergency to those who are industrious and deserving will diminish rather than increase excessive drinking.

It may be observed that this objection, like so many that have preceded it, is general in character, and equally applicable to every kind of Hospital.

11. That women will not readily be found who will learn and devote themselves to this special branch of nursing.

11. If this were so, then the answer is found in the objection itself, and there is all the more reason why an effort should be made to induce respectable women to undertake this unoccupied and worthy field. Thereby rich and poor would be alike benefited. In fact there is no such feeling among women—the applications are numerous; but there is no adequate place or means of instruction at present. The demand for "Monthly" or "Ladies'" nurses, or skilled midwives, far exceeds the supply.

12. That aggregation leads to an increased and high rate of mortality among lying-in women.

12. This may be true, if by aggregation is meant the collecting of a large number of patients in a single room where the arrangements and management are inefficient. The criticism is, in fact, one of the principal justifications of the Scheme. In an Hospital such as we advocate complete separation of the patients is intended, and it will thus afford all the advantages of an Hospital as a curative medical asylum and a place of instruction, without any of the disadvantages resulting from aggregation, or "herding," as it is sometimes erroneously designated.

Complete isolation of the patients is, then, a fundamental principle in the proposed Hospital, and no such Hospital at present exists. The objection may have point if levelled at existing institutions,—it has none if levelled at the one proposed.

We cannot bring this more forcibly home than by

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simply quoting the weighty words in the appendix of the 35th report of the Registrar-General for England. Dr. Farr states: "these deaths (2,403 from accidents of childbirth and 1,400 from metria) are very deplorable—they require to be watched, as they are from various causes, some of which are under control. Metria has been frequently introduced by collecting many women into the wards of lying-in hospitals. This evil has been to some extent remedied, but it still exists. A very common cause of death is the want of skilled midwives, to which I have before called attention. A mother's life often hangs on some simple act which can be easily performed by a woman who understands the mechanism of delivery; in the absence of that skilled hand to perform that act she dies, and carries out of life with her the unborn child." And in the supplement to the same report the following occurs: "30 to 90 per cent. (of women in childbirth) are attended by midwives, often ignorant, often incompetent and unable to deal with any difficulty. In Wales, Lancashire, and the Northern Counties the mortality in childbirth exceeds the average. The introduction of the midwife, or skilled accoucheur, by a sort of antinomy, is attended by dangers to be particularly guarded against; a fever attacks puerperal women, and that of a most contagious kind. It spreads from bed to bed in lying-in hospitals. It is conveyed by the nurse, the midwife, the accoucheur, in private homes to other women, and kills them. * * * And from this fever 1,138 mothers died annually in the 25 years 1848-72."

Can it be wondered at therefore, in view of what Dr. Farr has said, that "an application has been made to the Local Government Board to appoint an inspector to investigate the causes of the outbreak" of a serious and fatal epidemic among mothers and children recently admitted into the Queen Charlotte's Lying-in Hospital? The editor of the *British Medical Journal*, May 17th, 1879, adds the following paragraph: "During the last week, in Queen Charlotte's Lying-in Hospital, the death of a woman from puerperal fever, and the deaths of two infants (one of which was certified from erysipelas) were recorded. During the six weeks ending last Saturday, the deaths of 11 mothers and 20 infants were registered in that institution, which, it is reported, is

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at length closed. The reasons for not sooner adopting that course it will be for the managers to justify."

Can anything be stronger than this for attracting public attention to this subject, and for attempting to improve our present system of lying-in accommodation? Nay, further, two others (making three of the four lying-in hospitals) are now closed from similar causes, in all probability; at least they were recorded to be in this state during the course of the past year, and it appears from the following notice in the *Lancet* of May 17th, 1879, that they are so still:—"The Registrar-General reports in his last weekly return that the Queen Charlotte's Lying-in Hospital is now closed. It appears that during the week ending last Saturday, the death of another woman from puerperal fever, and the deaths of two more infants, of which one was certified from erysipelas, were recorded in this institution. Thus, in the six weeks ending the 10th inst., the deaths of eleven mothers and of twenty infants were registered in this lying-in hospital. The General Lying-in Hospital in Lambeth, which was closed in September, 1877, in consequence of epidemic fatality of puerperal fever, has not since been reopened. We have reason to believe that the City of London Lying-in Hospital has been also closed for some time. In the British Lying-in Hospital 176 deliveries occurred during 1878, and the deaths of two mothers and of eight infants were registered."

In a cottage hospital, where there is complete isolation, and the means of carrying this into effect, no such shutting up of the whole hospital need ever be resorted to. And in a vast place like London there is no necessity whatever to enlarge on the propriety of having constant adequate accommodation for poor lying-in women. (See pp. 107, 124-6.) At present, for the whole of the poor lying-in women of London the accommodation in the British Lying-in Hospital is all that is available, *i.e.*, 25 beds (!), and epidemics of puerperal fever are not unknown there also. But what are twenty-five beds among so many—over three-and-a-half millions? Yet this is all the accommodation available for London at the present time. Who knows but before other six weeks pass, the British Lying-in Hospital may be shut up from a similar cause.

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13. That the profession would oppose:— (I.) Because of its being a special Hospital.	13. (I.) Its whole merit is that it is in one sense a Special Hospital; as no other principle is justifiable in a Lying-in Hospital—experience having proved that its existence in combination, or rather within the walls of either a surgical or medical Hospital, is incompatible with safety to its occupants. In fact, in so much so that the Lying-in beds have had to be removed from Hospitals in which they had hitherto been established. This is clearly brought out in Chapter II. There can be no stronger ground for the establishment of the hospital advocated than exists even at the present time, where the lying-in accommodation, as we have seen, is only twenty-five beds for the whole of London: see answer 12. Three of the four hospitals in the metropolis have had to shut their doors from not being able to put the principle of complete isolation into practice. We accuse no one. We show the more excellent way.
(II.) Because General Practitioners would consider such an hospital as antagonistic to their own "businesses."	(II.) There is no reason why they should. Rather should it be welcome, more especially to the busy doctor in general practice, who would have more leisure to devote to his graver cases, with much more satisfaction to himself and his patients, than wait at a long midwifery case for which he would never be sufficiently nor adequately paid, or perhaps not at all. Besides, the woman's life, or the babe's, might be in danger if the doctor is over-busy with a number of poor cases, and it would no doubt be a relief to him to send the poor deserving cases to any place in which he might have confidence, as perhaps he might not feel disposed to pass any patient (who much wished his own services) on to a brother practitioner. There is room enough if the poorer general practitioners think it desirable to attend poor women for a totally inadequate fee, or gratuitously even, for their doing so. In point of fact, next to the poor themselves, the class to which the greatest amount of benefit is likely to accrue from such a hospital is that of the general practitioner in the "crowded haunts." There are disadvantages in the homes of the poor which the doctor must daily meet with. Such as the imperfect accommodation, the absence of all sanitary or hygienic arrangements, the deficient or no nursing, the inadequate food, and insufficient or no aid at all. This condition is bad enough when the labour is natural, but how can we adequately reckon the risk when an

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operation is required—not merely at the time of its performance, but also the impracticability and impossibility of regular and constant supervision which is so necessary in the after-treatment? The conscientious practitioner cannot fail to perceive that it is impossible to do justice to the patient and his own professional reputation in such cases. It becomes imperative to have some place where women under these circumstances could be properly accommodated; in short, where every requisite for emergencies, operations, and treatment is at hand, where sanitary arrangements are good, where the nursing is efficient, the food adequate, and the management as perfect as possible. But there is another and a higher view in which the medical profession will be gainers by such hospitals as that proposed, namely, on account of its being a teaching hospital.—In regard to this matter see next Answer.

(III.) Because it might be a slur on the abilities of the General Practitioners *quoad* midwifery

(III.) It is quite impossible, if not ridiculous, to suppose that an enlightened profession would regard the procuring—to say the least—of increased facilities for obtaining knowledge as a slur, and the corroboration of this view by the most eminent accoucheurs and medical men sets this completely at rest. This object of the institution—clinical instruction—all will readily and highly approve of. The practitioners from the town, from the country, from abroad, as well as graduates and undergraduates, would undoubtedly welcome a place of this kind in London to obtain information or to rub up for one, two, or more months knowledge which they have partly forgotten or allowed to become rusty. Besides, the Rotunda Hospital in Dublin is enough of itself to allay any anxiety on this point.

Furthermore, is it natural to suppose that gentlemen studying medicine at our colleges should prefer to go to the dens and lowest slums of London and other towns, to get up this branch of the profession so differently from the two other? (See pp. 183-189). Must we go on, not only allowing our young men to incur the risk of infection on entering the profession, cutting them off, or, it may be, laying the seeds of future illness or delicacy, incapacitating them, perhaps, at the time of their study as well as afterwards; but also exposing them to filth, vermin of all conceivable (or inconceivable) varieties, as well as low sights—all

OBJECTIONS, &c.	ANSWERS.
	which tend to disgust young men with this branch? Does not this account for much of the carelessness and ignorance displayed by practitioners, and connect it with the corresponding rebuke of the Registrar-General? This department has much to try as well as to cheer. We should, therefore, endeavour to make it as enticing for those who must learn it as possible. Those who know anything of medical education can easily perceive the vast difference there is to the student in getting up his education comfortably or the reverse. How very disagreeable and disgusting this department is comparatively to the students—therefore it is done almost always in a perfunctory and slipshod manner. Those acquainted with the matter know that this is so. (See pp. 69, 187.)
14. That the expediency of increasing the number of our charitable institutions is doubtful, and that it might be better to strengthen the existing, and make them central, and then perhaps establish moveable cottage hospitals round London.	14. To unite the existing Lying-in Hospitals—there is no similar hospital—is simply impossible. To represent the matter fairly to them would involve far more trouble and work, and of a thankless nature, too, than the starting of a new scheme altogether. Let the scheme start with a Cottage Hospital as a centre, and at the same time let the Western District of London be subdivided into limited and well-defined localities, whereby poor deserving women will be properly attended at their own homes. Let the hospital be situated in an open, convenient, airy part, on the outskirts of the city, but accessible to the masses. We could never amalgamate the present lying-in hospitals while the principles between them and the one sketched out are so different. Complete separation of patients with us is necessary, with them it is not at all required.
15. That a scheme of such magnitude, as a charity, could not be self-supporting.	15. For a detailed exposition in answer to this objection see Chapter V. Reckoning up everything as fairly as one can (as an approximate estimate), the work, if successfully started, ought to be self-supporting in three years. A sum of not more than £20,000 would be required for ground, building the cottages, and supporting the hospital for these three years.

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	Certainly no charity could bear the strain of nursing patients as indicated in the foregoing, *i.e.*, in cottages on the principle of complete isolation, unless a training institute.
16. It has been stated that all will depend on the whole being successful. If one part fails, then the whole may tumble down.	16. Taking it for granted that we have the money—nothing can be done without it—the only risk lies in the possible difficulty in getting the right sort of women to start with. Should this difficulty occur, no injury will arise therefrom except delay, and a consequent increase in the cost of establishing the Hospital on a self-supporting basis. We are confident that if additional funds should be necessary they will be forthcoming. On the other hand, the fact that all the parts work into one another, and that no part is superfluous, is the surest proof that the scheme deserves success, and is therefore likely to obtain it. Every useful scheme that has ever yet been proposed has had its difficulties and objections to meet and overcome. The criticisms and strictures made have some truth in them, they are not only conclusively answered, but also (as the rejoinders will show to an impartial judge) a strong case has been made out for the establishment of such an Institution in London. See also *British Medical Journal* of October 5th, 1878. Also pp. 122-130.

CONCLUSION.

To sum up, the objects we have in view, together with the obvious ones already referred to, which are worth the serious consideration of any one who might be disposed to grant substantial aid in support of a project of this kind, are somewhat as follows:—

1. The establishment of a Cottage Hospital such as the one suggested would materially help to solve, in a conclusive manner, the question which has engaged the attention of enlightened men, in and out of the profession, for the last ten years or more, and which must continue to do so for many years to come, not only in this country, but throughout the continent of Europe—namely, the question connected with Lying-in mortality, particularly from puerperal fever; its causes, its relative frequency in and out of hospital, its prevention, &c.—one hitherto unsolved and surrounded with many difficulties, and the solution of which would, without doubt, enable us to form clearer views on the subject, and prove of incalculable benefit to mankind.

2. Such an Hospital would tend to put London on a level with Edinburgh and Dublin in regard to its facilities for delivering poor women at their own homes where these are in a *fit* condition; and, further, for providing the best and safest accommodation for those whose homes are unfit.

 As we write it is perfectly ridiculous to suppose that twenty-five Lying-in Beds are enough to meet the wants of the metropolis, with more than three millions and a half of people. This fact is not known or realised. Edinburgh, with less than a quarter of a million, has more beds. Of course three of our four hospitals are at present *hors de combat*, but this ought not to be. London, in this particular, has only one-sixth of the beds available that Dublin has, although London is twelve times larger than Dublin.

3. As an institution for the more thorough training and education of nurses, it must raise the tone of that profession. At present the whole time a "monthly" nurse spends in learning her profession is from four to six or eight weeks, which is utterly inadequate and unparalleled in brevity, considering the vast amount of knowledge she is expected to acquire during that space of time. Whereas, it is proposed to train women of high character in the general principles of nursing first, then to advance to more responsible and special duties, and retain them for three years.

4. This institution would afford a new means for instructing our medical men in a department in which hitherto they have never had an opportunity of getting any clinical instruction. Anyone particularly interested in this

and the preceding point (3) ought to look into the Registrar-General's report for the last two or three years, where he will find the result of this defect very decidedly specified, and the benefit in the saving of life that would accrue if greater care and attention were paid to this department of medical practice.

When a plague* visits the community and attacks our loved ones, rich or poor—the latter more pitiable, because when cold and cramped by the pestilence, they cannot have the solace and comfort which money can command—when our fellow creatures are dying around us as if smitten by a destroying angel, our sympathy is aroused, we have an awful and keen sense of our responsibilities—we rush to our posts of duty. Money is readily and cheerfully given, and personal visitations are made to houses and to hospitals. Terror may assail ourselves, and we put our own affairs in order, and ever and anon we think whether we have done all we ought or could. Betimes the pestilence abates—we have escaped, and ultimately it passes away from the community; and as time passes, and the stimulus too, so does the remembrance of it, we relapse into a state of indifference, as if we were safe.

This is no fancied allegory—it is no uncommon thing in one shape or another. Have we not almost annually something of as perilous a nature to call forth the sympathy of all who are not *past* feeling? Is there not a famine? Is there not a flood? Is there not an explosion or a coal-pit accident? Is there not some shocking disaster on sea or land?

There is something at home or abroad which periodically keeps us on the alert, and reminds us of our duty.

But if we realised facts that lie within the immediate reach of every one of us, we should find that a pestilence is constantly raging in our midst, more terrible because more extensive and occult than that depicted; more dangerous, because overlooked in forms of poverty and charity; so that from familiarity with them—looking upon the individual, not the mass—we come to view as inevitable a mortality that is bringing God only knows how much human suffering and grief, and which is costing the country how many lives? of which we are of late years learning an approximation!

Surely, if we took these realities of life to heart, we could not contentedly leave their case to remedies that manifestly fail, and that, unintentionally, are found to increase the disease; we should come forward with one voice, and endeavour to place the construction and

* In this simile we have borrowed and adapted some phrases from an esteemed writer.

management of our lying-in hospitals upon the most enlightened footing, so that this terrible disease, puerperal fever, may not spread further by communicability on the one hand, and our poor and despised and destitute may be effectually relieved in a safe asylum, on the other.

Powerful and willing pens indite effective appeals, when required, in aid of the starving and famine-stricken, as well as the wounded and dying on the battle-field, so that money, in tens and hundreds of thousands. is quickly and cheerfully given. Is there none to take up the cause as effectively in behalf of the suffering, helpless, and neglected mothers, with their innocent and dying babes, around our own homes —in the alleys and mews of this great city? Who can adequately reckon the need and the extent of the wants and misery to be met? Much requires to be done, and much may be done, by a little help. To establish an Hospital with the objects in view as stated in the foregoing, a sum of only £20,000 will be required, but, after being established a few years, it is expected that such an Institution will be self-supporting.

"To be, or not to be, that is the question."

"THE BEST LOVE MEN CAN OFFER
TO THE GOD OF LOVE, BE SURE,
KINDNESS TO HIS LITTLE ONES,
AND BOUNTY TO HIS POOR."

"NURSING THE SICK."

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OPINIONS OF THE PRESS.

From THE STANDARD.

Since Miss Nightingale benefited the world by her very clear "Notes on Nursing," we have not seen so useful and practical a work on the subject as the valuable volume before us. This work is based on the varied experiences of a medical practitioner of considerable repute in his profession. The rules here given are simple and minute in detail, and cannot well be misunderstood or misapplied by the most ignorant; and very often the principle of the rule given is explained, so that the reason is appealed to, and not without effect. Beginning with the sick room, the author gives directions for its furniture, the condition in which it is to be kept, its purity of air, its cleanliness, the position of the bed, with many other such points of practical concern. Next we have a detailed account of the duties of the nurse: how she is to go about her work, and all about qualifications. A most interesting chapter is that which discusses "the diet fit to nourish the sick," which, of course, varies with different conditions of the same patient, and with different patients. It is in this particular we find the most special advantages of this work, furnishing us as it does with so many facts and figures and easily-understood rules on the all-important question of diet, and the best method of cooking for the sick. Another valuable chapter is given on the most serviceable way of using the different appliances, and administering medicine to the sick, of making poultices, and such like requisites. The closing chapter discusses in special the most advisable method of nursing during pregnancy. It is impossible to turn over many pages of this work without being struck with the facts, first, that the writer is fully at home with the benefits conferred upon his profession by the most recent discoveries in the medical art, and secondly that he brings to his art the practical lessons of experience. We are glad to see his exposure of the common fallacy that night air is injurious, he considers that the reverse is more probably true.

From the MORNING POST.

Dr. Munro dwells with great earnestness upon the importance of a comfortable, airy room, and the wholesome effect upon a patient, no matter what disease he may be suffering from, of cheerful objects, quiet, and cleanliness. He advocates, with the wisdom taught by experi-

ence, "plenty of sunlight and a good exposure." Dr. Munro goes minutely into the question of ventilation, disinfectants, and deodorisers, draughts, and temperature, laying great stress on the necessity of pure air, which is beneficial alike "to the physical conditions and mental faculties." In cities the atmosphere is generally purer at night than in the morning, and, judiciously admitted into the sick-room, has a very wholesome influence, great care being taken at twilight and at early morning when sudden changes of temperature occur. In foggy weather the air inside the house is preferable to that of the atmosphere. Great attention should always be bestowed on the drinking-cups, plates, medicine-glasses, &c., in order to insure the most perfect cleanliness. It promotes the appetite of the patient and frequently induces him to partake of food which, if presented in a slovenly way, he would turn aside from, or partake of sparingly and without relish. The chapter on nurses gives much dignity to the office, dwelling on the moral duties required for the ample fulfilment of her Christian work. The standard of character is a very high one, and we fear that the test is rather too severe for the ordinary woman of every-day life. One admirable axiom he quotes, and other people as well as nurses would do well to profit by it. "She ought to speak well of all people, or say nothing at all about them. What she does say should be said with great care and prudence."

Dr. Munro advocates an examination for nurses, whereby they might win a diploma, certifying good moral character, age, knowledge, and other qualifications. Sick diet is of essential service to the patient, and the proper selection of it, its variety and careful cooking, valuable auxiliaries to medicine. "Sick cookery should essentially be simple. This is a very important matter for the sick, as heavy, savoury compounds are loathsome; the thought of them annoys and disgusts the patient." A large number of "Invalid Cookery Receipts" close this extremely interesting volume. Altogether free from that dogmatical tone which too frequently prevails in books of science, Dr. Munro's volume abounds with valuable suggestions, and is evidently the result of thought, study, and medical experience.

From the GLASGOW HERALD.

The first book in English treating carefully and adequately the subject of the nursing and attendance of the sick. Miss Nightingale's notes are hardly detailed enough, and Dr. Munro's book must become the indispensable manual of everybody who wishes to train herself for what is almost a profession. The mere layman will here discover how much a proper nurse ought to know, and the nurse and the professional man will find a thousand practical hints, and thoughtful and sensible suggestions, which will be of infinite value in a sick room. The book is, indeed, so practical and sensible that it is entertaining reading. There are few who will rise from it without the conviction that nobody can be a good nurse who has not a great deal of knowledge not everywhere attainable, a great deal of experience, of good temper, and of sound sense. Dr. Munro thinks there should be a board of examination, trained nurses, and diplomas; and an immense step in the treatment of the sick will be taken when that idea is carried out. The best thing nurses can do is to study this book, which will tell them more, and more valuable things, than any other we know, and which is indeed almost an encyclopædia of nursing. His chapters are on the sick room, nurses and nursing, sick diet, appliances, nursing in childbed, and invalid cookery, and there is a copious index. But the book is one which a nurse should know by heart.

From THE DAILY REVIEW.

When it is borne in mind that there is no family in the whole community which can boast complete immunity from ill-health, and that, notwithstanding the progress continually made in physiological science, a very large percentage of the population is always suffering from one or other of the almost countless forms of disease, it is truly surprising that so little attention has hitherto been paid to sick-nursing, regarded in the aspect in which Dr. Munro treats of it in the book before us. The utmost skill of the surgeon or physician may be exerted in vain if not supplemented by good, and is often marred by incompetent, nursing. Still this important duty, the proper discharge of which requires not only experience, but tact, patience, and firmness, in a rare degree, is ordinarily entrusted to persons who do not possess one of the necessary qualifications for it. It is only of late years that the desirability has been at all acknowledged of providing any means by which properly trained nurses can be obtained; and even now the provision of this kind is extremely slight and inadequate. The literature of the subject, as Dr. Munro states in his introduction, is exceedingly small. The number of really reliable books in the English language which deal with it in any practical or exhaustive sense may certainly be reckoned on the fingers of one hand. This being the case, we are disposed to give a very hearty welcome to any fresh contribution towards the common stock of information; and more especially to a treatise like the present, written by one who has thoroughly acquainted himself with his subject, and who discusses its minutest details with the same honest care and thoroughness and the same breadth of view which he expends upon the exposition of its general principles.

Dr. Munro devotes his first chapter to the consideration of the choice of furniture and fittings of the sick-room. And here at the outset he has to recognise the circumstance that the great bulk of the population can have no choice in this matter—a fact which leads him to discuss the much vexed question of "hospitalism." In regard to this the medical profession is, we believe, still as much divided in opinion as in the days of the late Sir James Simpson, one of whose last public utterances, as we can personally testify, was a characteristically vehement and able denunciation of the hospital influence. Dr. Munro, in reference to this matter, takes what appears to us to be a common-sense view. He admits the existence of "hospitalism," in our large hospitals, and acknowledges that it probably carries off more patients than most other contagious influences; but, on the other hand, he points out that there is a counterbalancing influence in the greater care, better regimen, and more exact treatment which the sick poor receive in hospital than they can possibly obtain at their own homes. Dr. Munro thinks the cottage-hospital system the proper solution of the difficulty, and till that solution is attained he would utilise our present hospitals in all cases where the benefits of the home influence on a patient are likely to be more than neutralised by the unfitness of his surroundings. Turning from the discussion of this preliminary question, our author proceeds to state his views on the choice of a sick-room for the middle and upper classes. His observations on this topic are a good sample of the whole book in the practical wisdom of their tone, and the thoroughness with which the subject is considered in all its bearings. A sick-room, he tells us, should be moderately sized, airy, cheerful, and quiet. It should never, when that can be helped be adjacent to a thoroughfare or near the kitchen. As to the furnishings, we have minute particulars respecting the best kind of bedstead, mattress, bedding, tables, chairs, and all other fittings for a sick-room; the most desirable position for the bed, the methods which should be employed of

thoroughly cleansing the room without disturbing the patient, the proper use of disinfectants and deodorisers. The important matter of the ventilation of the sick-room is also fully discussed, and advice given about the temperature which it is ordinarily desirable to maintain.

In his second chapter, Dr. Munro treats of "Nurses and Nursing." This is, perhaps, in some aspects the most important branch of the subject; and our author discusses it with proportionate care and exhaustiveness. The department of nursing, he considers, is the branch of medical science which has of late years made the least progress. It is evident from cases on record that many lives have been sacrificed by the ignorance or carelessness of nurses —a fact which is the less surprising when it is remembered that the majority of nurses have chosen the profession from accidental circumstances, or "have been driven into it from having been all but defeated in everything else." Whatever the cause which may have led to their taking up the profession, most women of good character and average intellectual power may, however, in Dr. Munro's view, be fitted for nursing, if they will undergo the necessary training. He says:—

"It becomes every nurse to be honest, truthful, sober, forgiving, humble, patient, peaceable, obedient, cheerful, sympathising, kind, firm, and gentle. If the nurse wishes to profit, she must reflect upon these different qualifications, and examine herself to see whether she possesses *all* of them or not. If not, she should either abandon nursing altogether or set about cultivating them individually; for which of them can be dispensed with as unnecessary, or that cannot be attained? But these, indeed, of themselves will not make any one a nurse, while at the same time they are essential. The duties of a nurse are peculiarly trying, so that she will not be able to continue unless she has a high sense of her position. It is beset with much bodily fatigue and endurance, as well as mental anxiety. Besides, there are other duties which prove most irksome and disagreeable, as well as family failings, eccentricities, and peculiarities of temperament. Everything must be met in the same determined and self-denying spirit. Second to none in importance of the qualifications for a nurse is a thoroughly good elementary education. Be the nurse's character ever so good, what will it avail if the patient dies through the ignorance of the nurse? The patient may be killed by a mistaken dose of medicine, or even a mistaken medicine itself. The importance, therefore, of being able to read can never be over-valued in any one who has charge of the sick; indeed, it should be a *sine qua non* that they should be all able to read and write. How many of our present nurses this single experiment would cut off? This ought not to be the case. Mental culture will aid the nurse in many ways. She will not only be able to improve herself morally, but it will also assist her in her special sphere as a nurse. Further, the person in charge must learn to look upon disease, even the most trying and horrible, without either disgust or fear. Now, it is perfectly compatible to do this and have a fellow-feeling for the sufferer. Any one who is so callous as to be *past feeling* will never make a good or an acceptable nurse: neither will she who is so soft-hearted as to shake her head or put a grin on her face when pain or fear is manifested. The nurse must be firm, but possessed of a gentle will and hand. Real sympathy is shown more by *act* than by words, which become rather a source of annoyance than otherwise to the patient. Sympathy is easily known where it is seen, but difficult to describe." Dr. Munro's other observations on the qualifications that should be possessed by a nurse are equally pointed, and the advice he offers respecting the manner in which a nurse should perform her trying and responsible duties may be read with profit both by

professional nurses, and by all other women, whatever their position; for there are few women who, if they faithfully perform their duties to those around them, are not called upon at some time or other to undertake some of the functions of nursing. The remaining chapters of the work are respectively devoted to "Sick Diet," "Appliances," and "Nursing in Child-Bed." We do not think it necessary to follow our author in detail through his treatment of these branches of the subject. It is sufficient to say that on each he exhibits the same thorough acquaintance with the matters handled, and combines the same shrewdness of observation and practical wisdom of admonition and instruction, as are evinced in the earlier chapters. The completeness of the book as a practical handbook of nursing is enhanced by the addition of a large collection of recipes for invalid cookery. We think Dr. Munro is entitled to the gratitude of the medical profession, and of all persons who are interested in the work of lightening the sufferings of those afflicted with ill-health, for giving this treatise to the world. There are probably few members of the profession who are as well qualified by experience to undertake such a task. We do not think that any one of them could have discharged it better.

From the LANCET.

A good and useful guide . . . The volume contains a number of practical points.

From the MEDICAL TIMES AND GAZETTE.

The author claims to have had special opportunities, and has evidently taken no small pains to produce a work that should form a useful practical guide to the sick room.

A suggestion thrown out in the early portion of the work "that it would be advisable to organise a staff of district visiting nurses, similar to or combined with the district Bible-woman, as now employed by some of our churches," is a very good one; "such an organisation might prove of incalculable benefit in showing the people how to clean their homes *properly*, how to cook their food *well*, and many other things of a similar nature." He justly observes that "the Church in this respect has shot ahead of our profession." There is much in this work that the young practitioner will be glad to learn. It is just the book to place in the hands of any intelligent woman intending to qualify as nurse, and if more heads of households were familiar with its teaching, it would save them much anxiety and the doctor much unnecessary trouble.

The chapter on sick-diet is well worth perusing, and, together with the appendix on "Invalid cookery," will doubtless prove of great service to many an invalid whose friends have taken the trouble to study them. The subject is well and exhaustively treated, and is evidently written by one who thoroughly understands the practical details.

The work itself reflects great credit on the author, and deserves a large circulation. It is printed on toned paper, in a bold, clear type, that, in the quiet hours of watching, might easily be read without distress.

From the NORTH BRITISH DAILY MAIL.

In this book Dr. Munro discusses an important but much neglected subject. It is somewhat strange that in these days of abundant literature the question of sick-nursing should have received so little attention. It is a question which concerns both the medical practitioner and the general public. The other is by Miss Nightingale, who, though pre-eminently fitted

for writing as a nurse, does not claim to speak with the authority of a physician. It is true there are other little books treating of parts of the subject, but not one, so far as we know, that deals with the whole question broadly, thoroughly, and minutely, as it deserves. The book consists of an introduction, five principal divisions, and a number of cookery receipts, specially designed for the benefit of invalids. In the introductory part we are told that the supply of trained nurses is utterly inadequate. This is, no doubt, perfectly true; and it is a matter of some astonishment, seeing that there is a constant and increasing agitation for employment for respectable women. "Nursing is woman's peculiar sphere," and that there should be such a demand for work on the one hand, and such a lack of service on the other, indicates serious blundering somewhere. Not only is there a great scarcity of nurses, but those who do nurse are said to be altogether unequal to their duties. Professor Bennett, in his address to the graduates of medicine last year, said, "When you enter upon the duties of your profession, you will find that, too frequently your best efforts are frustrated by parents, nurses, or attendants on the sick. . . . I have myself seen, only too frequently, the most melancholy deaths produced in families . . from carelessness or ignorance." If this be so, and there is no doubt that it is, any book which aims to dispel such ignorance deserves most attentive consideration. In his first chapter Dr. Munro speaks of the rooms in which the sick are lodged during their illness. To this part of the subject special attention has been given, and we have a number of observations which should be committed to memory by every nurse and mother. After the room comes the furniture. The bed of a sick person is a matter of no small moment, especially if the illness be of long duration. Dr. Munro tells us how to reduce discomfort to a minimum in this respect. Bed-curtains, he says, "are useful" as a protection from draughts, and also for the purpose of shading the patient from strong light, which is intolerable to an invalid. The best kind of chairs and tables is indicated; of the latter several cuts are given which enable the reader to see a representation of those which are most conducive to comfort. In the matter of carpets, Dr. Munro hardly agrees with many of his professional brethren. It is a frequent opinion that they become filled with dust, which, when raised by any means, is very injurious to the patient. The Dr. on the contrary, says If this be done the carpet can, of course, be frequently taken from the room and thoroughly cleaned, so that it will no longer be a hiding place for the offending dust. After a detailed description of the furniture, we have some instructions about cleanliness in the sick room. The following remarks should be well pondered by those who have charge of the sick. "The effect of cleanliness is often marvellous. Many diseases originate from inattention to it, and simply require for their treatment that the filth should be removed. Yet how many trust to 'bottles,' 'lotions,' 'salves,' 'healing-saw,' or 'ointment' to heal a superficial sore, for example, which might be cured by cleanliness alone." On the all-important subject of ventilation, Dr Munro enunciates a simple and intelligible principle, which should be constantly remembered. He says—"The great desideratum for us to determine is, how to keep the air inside the sick room as pure as the external air, and at a temperature suitable for the sick person." This is a thing most difficult to accomplish in the present state of domestic architecture; but of the value of such a principle there cannot be the slightest doubt. A sufficient quantity of pure air should be constantly entering the room, by such an inlet as will admit of no draught; whilst, of course, all that is necessary for the regulation of the temperature is the constant use of the thermometer. Ventilation should be as perfect during the night as in the day. Says Dr. Munro—"It

is a fallacy to suppose that night air is bad; indeed the reverse is probably the case. The air during the gloaming and in the early morning is often dangerous, on account of the sudden change." But "we have every reason to suppose that, in our towns at least, the air is as pure, if not purer, during the night than in the day." The obvious inference from which is, that as a general rule it is expedient to sleep with your bed-room window more or less open! The second chapter is devoted to "Nurses and Nursing." It is hardly equal in point of literary or actual merit to the first. It is somewhat diffuse, and not always so clear and definite as it might be. This part of the subject is perhaps difficult to deal with. It is easy to say, in general terms, what a nurse should be: but not so easy to write in such a manner as that our present and future nurses will read what is written, and profit by it. To be a really efficent sick nurse, a woman requires a combination of excellent qualities, such as will not be commonly found in one individual. Nevertheless, if any ordinary woman will carefully study Dr. Munro's remarks on "Nurses and Nursing," she will hardly fail to be a much superior guardian of the sick to most of those who are now professional nurses. Of nurses the Doctor says—"The position which the nurse holds is one of trust and responsibility, not only in relation to the case of sickness itself, but also as standing between the sick person and others." Gossip, the favourite recreation of nurses, is thus rigorously condemned. Abundant counsel is given on every part of a nurse's duty and belongings. Dr. Munro suggests that professional nurses should undergo a course of study and examination; and that diplomas should be conferred on those who have studied successfully. This suggestion is worthy of the attention of all who are interested in the welfare of the sick. "Food for the Sick" is considered in the third chapter. The management of a patient's diet is perhaps the most difficult and unsatisfactory of all a nurse's duties. So much depends upon it that it is impossible to speak too emphatically on the absolute necessity there is for every nurse to be a thoroughly efficient superintendent of cookery. This chapter is exceedingly valuable. The reader is clearly told the nature of different foods and the effect of each on the system. Nurses are urged to study variety and simplicity in cooking. It is impressed upon them that in many cases, perhaps in most, the patient's recovery depends far more upon his food than on his medicine. A very simple rule in the administration of food is often neglected by nurses, and the neglect is a source of frequent annoyance and injury to the patient. The fourth chapter instructs nurses in the art of using surgical appliances, and the fifth is chiefly interesting to ladies. These chapters are of the same plain and practical nature as those in the earlier part of the book. Much that is in them might be quoted with advantage, but enough has been said to indicate the intention and character of the work, both of which are undeniably good. Concerning the book as a whole, it may be said that it is thoroughly practical and useful. Not only so, but it is a work which was imperatively needed. The book is the result of careful and accurate observation, and full of information which it concerns all people to know. It ought to be the text-book and companion of every person who is called upon to take charge of the sick.

From the NONCONFORMIST.

"When you enter on the duties of your profession," said the late eminent Professor Bennett, of Edinburgh, in addressing the graduates of medicine one year, "you will find that too frequently your best efforts are frustrated by parents, nurses, or attendants on the sick, who, not comprehending, are therefore incapable of carrying out, your instructions." In

saying this Professor Bennett directed attention to the necessity for complete training in the science and art of nursing; and he raised it at once to the rank of a department of medicine. From earliest times "nursing the sick" has been a favourite work with Christian women, whose educated instincts, touched and quickened by the grace of God, have enabled them to minister aptly to the wants of the poor and suffering; but in these days of complicated diseases and as complicated means of cure, the help that can only come from some knowledge of medical processes is indespensable to any real success in the calling of a nurse. Hence the demand for education—for scientific knowledge and some degree of systematic acquaintance with the best and most accepted methods. It is true that agreement has not been reached on all minor points; but agreement is absolute in certain more substantial matters. All agree that training is essential; that it can only be acquired by actual apprenticeship to those who have already obtained it; and that hospitals, infirmaries, and the battlefield are the best places in which to secure it. The study of the science and the art thus go together, precisely as the medical student reads his Quain and attends anatomical demonstrations, and makes one aid the other. Florence Nightingale was the first English lady who practically and thoroughly studied nursing in this way, and her influence has been weighty. Her followers rise up in companies, and nowadays no lady of rank or fashion would dare attempt to decry or despise any one who had ventured on it If, after setting out with flying colours, she fail to pass through her probation, that is quite another thing.

And it is truly astonishing the questions which practical nursing among the poor very speedily suggest and lead up to. For example, there is the matter of relief-giving and all its difficulties, the question of the improvement of the dwellings of the poor, and the supply of pure water and better ventilation. In one word, once started from this point on the groove of reform, it widens and widens out like a sea till it seems in very truth to include the scope not only of social economy but of political action—touching all questions of taxation as well as of social ethics. Dr. Æneas Munro thus indicates some of the forms in which these questions are certain to force themselves on practical students of nursing and those interested in the more thorough training for it:—

"When the working man or any member of his family is stricken down with illness, we often have no choice but to allow him to remain in the apartment he occupies, and use every precaution we can, as far as circumstances will permit, with regard to sanitary and other general arrangements.

"In this case the medical attendant meets with many difficulties, especially ignorance on the part of those who have charge of the sick person, and the want of the necessary means to carry out the medical instructions. Directions should always be given in language which can be easily comprehended, and if the person is at all competent, none will act up to them more eagerly than the members of this group. Very often, however, there is no competent person to take the charge, and in this case it would be advisable to organise a staff of district visiting nurses, similar to, or combined with, the district Bible-women, as now employed by some of our churches.

"The Church in this respect has shot ahead of our profession. Such an organisation might prove of incalculable benefit in showing the people how to clean their homes *properly*, how to cook their food well, and many other things of a similar nature; or actually doing it themselves for the necessitous. Is there no one to come forward and set the example in this department?"

A suggestion this which surely deserves the wise and thorough consideration of many sections and parties.

Dr. Munro is a practical physician and an excellent writer. He some-

times cannot escape looking at matters a little from the theoretical side, but that is pardonable. His book is very full and thorough—very conscientious, careful, systematic; and is supplied with a thoroughly good index, as well as with side-headings, which make reference easy, and will undoubtedly prove a great help. His patient, yet clear manner of dealing with every detail connected with the sick—the bed, the clothing, the temperature, the ventilation, should make his volume truly a "family friend!" We especially thank him for what he has said with much emphasis and clearness about disinfectants and deodorisers, when used merely to conceal offensive odours; and surely he is right when he says that the best disinfectant and deodoriser is fresh air. And one can say this, and yet do all justice to carbolic acid. This, too, is sensible and well put, but, alas! how often is it forgotten?

Dr. Munro, too, has many valuable suggestions about sick-diet, and the mode of serving it, but we cannot quote further from a work which we have read with interest and can cordially recommend as practical, well-written, and fitted to be useful.

From the NORTHERN ENSIGN.

The volume is one of genuine merit. It is on a subject, or rather a variety of subjects, in which all are deeply interested, and being thoroughly popular in its details, and devoid of all technicals, it is a work that commends itself, and ought to be warmly welcomed.

From the COURANT.

It gives much instruction of a thoroughly practical kind to those who may wish to become efficient nurses.

From the SPECTATOR, *Oct. 18th*, 1873.

Dr. Munro's book will prove a valuable manual to the nurse who has missed early training for her work, and also to the increasing number of those who are being specially trained for nurses. Dr. Munro observes that there are few books on the subject, and those are often "sadly lacking in detail or minute accurate description of the management of the sick." This want he endeavours in the present work to supply, and certainly he has brought much patient painstaking to the task; the nurse must be dull indeed who fails to comprehend his instructions. Unlike most books of this class, the present work is intended rather for the professional than for the amateur nurse.

From THE BOOKSELLER.

Sairey Gamp and Betsy Prig are no longer admitted to the sick room; and since the days when poor Martin Chuzzlewit lay tossing painfully under their care in his sordid London lodgings, the character of hired nurses has wonderfully improved. The attention of the public was pointedly directed to the subject of professional nursing during the Crimean war, and an effort was soon after made to organise a body of trained nurses for hospitals, asylums, and private houses. The importance of good nursing once fairly recognised, the entire change of its practice was insisted on, and incompetent ignorance was tolerated no longer. To the efforts of medical men and the

publicity gained through the press are certainly due whatever improvements have been made in this direction; but that much remains to be done is generally admitted. Previous to the publication of this volume, the literature of nursing was confined to Dr. Thomson's "Management of the Sick Room," Miss Nightingale's "Notes on Nursing," Mrs. Barwell's "Nursery Government," and some smaller treatises. His book is full of wise and practical suggestions, and will be found useful not only to those who make nursing a profession, but to every female who may happen to be called into a sick room—that is, to every woman and girl in the land.

From the British and Foreign Medico-Chirurgical Review.

The treatise is replete with useful instruction and suggestions. It may be recommended to the happily increasing class of persons interested and concerned in nursing the sick.

From the Obstetrical Journal.

This is certainly one of the best books on nursing at present published. The author knows his subject thoroughly, and communicates his information simply and intelligibly. He takes an exalted view of the nurse's calling, and thinks she ought to be required to pass through a regular course of instruction—to pass a written and oral examination, and receive a certificate as a "skilled nurse" from a board of examiners. The present volume would be an excellent text-book for such women. The advice to the nurse is unexceptionable . . . her duties are indicated with sufficient minuteness. We can confidently recommend it to all who are interested in the beneficent and responsible work of nursing the sick.